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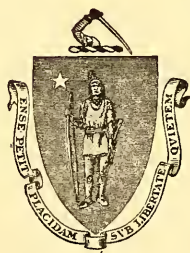
COMMONWEALTH OF MASSACHUSETTS
DISTRICT POLICE REPORT

1912



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REPORT OF THE CHIEF
OF THE
MASSACHUSETTS DISTRICT POLICE,
FOR THE
YEAR ENDING OCT. 31, 1912,
INCLUDING THE
INSPECTION AND DETECTIVE DEPARTMENTS.



BOSTON:
WRIGHT & POTTER PRINTING CO., STATE PRINTERS,
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1913.

APPROVED BY
THE STATE BOARD OF PUBLICATION.

The Commonwealth of Massachusetts.

OFFICE OF THE CHIEF OF THE DISTRICT POLICE, STATE HOUSE,
BOSTON, MASS., Jan. 1, 1912.

To His Excellency EUGENE N. FOSS, *Governor, The Commonwealth of Massachusetts.*

SIR:— In the discharge of the duties of my official position as Chief of this force, and in compliance with the provisions of section 2, chapter 108 of the Revised Laws, I have the honor to submit my sixth annual report, with such recommendations as I deem necessary for the efficiency of the force, such report being for the twelve months ending Oct. 31, 1912.

REPORT.

THE DISTRICT POLICE FORCE.

The District Police Force as now existing is made up of the following detail:—

The Chief, who is in charge of the entire force.

The detective department, consisting of a deputy chief; a chief fire inspector; a captain, who is in command of the State steamer "Lexington" when such vessel is in commission for the enforcement of the fishery laws, and at other times is assigned to general duty in this department; fourteen detective officers and nine fire inspectors. By the provisions of chapter 614, Acts of 1912, two additional fire inspectors were appointed to this department.

The inspection department, consisting of a deputy chief and fifty-six inspectors; thirty-one being inspectors of factories and public buildings and twenty-five being inspectors of boilers. Of the thirty-one inspectors of factories and public buildings, thirteen are employed as inspectors of public buildings, and the remaining eighteen, two of whom are

women, are employed as inspectors of industrial establishments. Ten of the inspectors of factories and public buildings, stationed in the headquarter office at Boston, are respectively employed, when necessary, in the examination of applicants for moving-picture machine operators' licenses; and the twenty-five inspectors of boilers are also employed during a part of their time in the examination of applicants for engineers' and firemen's licenses.

THE CLERICAL FORCE.

The clerical force consists of the first and second clerks; the stenographer to the Chief; one clerk and three stenographers employed in the detective department; and two stenographers and seven clerks employed in the inspection department.

The two stenographers in the inspection department are employed in connection with the work of the inspectors of factories and public buildings; three of the seven clerks in such department are employed in connection with the work of the inspectors of boilers, one of whom also acts as secretary to the Board of Boiler Rules; and of the remaining four clerks, one is appointed to each of the four branch offices of the force, at Fall River, Salem, Springfield and Worcester, respectively, such clerks being employed in connection with the work of the entire force stationed at such offices.

In the following report I have endeavored to incorporate, in so far as possible, all information tending to show what has been accomplished by this force during the twelve months covered by the report, including not only the detection and punishment of criminals and the prevention of crime, but also the enforcement of the numerous laws relating to public buildings, factories, workshops, mercantile establishments and steam boilers. Abundant testimony is furnished by the various records of this force to the earnestness, intelligence and capacity of its several members; and that it has been their aim to secure the impartial and faithful enforcement of all laws which they are respectively called upon to enforce. In every case where sufficient evidence has been secured to disclose intentional violation of law there has been no remiss-

ness in the discharge of their duties. During the year a number of the members, not only of the detective department, but also of the inspection department, have been called upon to assist in the suppression of strike riots at Lawrence and Barre.

By reference to the statement of retirements and resignations which follows, it will be noted that Deputy Chief Joseph A. Moore retired from service in this force on Jan. 31, 1912. I should fail in my duty if I did not take advantage of this opportunity to publicly express my appreciation of his faithfulness, efficiency, fidelity and merit during his term of twenty-six years and seven months in the service of this force. But Captain Moore's service for the Commonwealth was of much greater extent than this, he having been appointed as a deputy constable of the Commonwealth on July 31, 1867, being in continuous service until March 1, 1875, a period of nearly eight years. Captain Moore is a veteran of the civil war, retiring under the provisions of chapter 458, Acts of 1907, which provides for the pensioning of veterans in the employ of the Commonwealth.

The following statements give in detail the various changes in the personnel of the force during the year: —

RETIREMENTS AND RESIGNATIONS.

NAME.	Position.	Date of Appointment.	Date of Retirement.	Cause of Retirement.
Atherton, Arlon S.,	Inspector of factories and public buildings.	Aug. 28, 1900	Mar. 31, 1912	Retired. ¹
Davis, Belle C., .	Clerk, ...	Sept. 7, 1885	May 31, 1912	Retired. ²
Dyer, David H., .	Inspector of factories and public buildings.	July 31, 1896	Mar. 31, 1912	Retired. ¹
Griffin, John E., .	Inspector of factories and public buildings.	Aug. 13, 1891	Mar. 31, 1912	Retired. ³
Hodges, Alfred B.,	Detective, ...	Jan. 6, 1896	Mar. 31, 1912	Retired. ¹
McKay, James, .	Detective, ...	May 1, 1899	Aug. 31, 1912	Retired. ¹
McNeill, Joseph H.,	Chief inspector of boilers,	June 1, 1898	July 8, 1912	Resigned.
Moore, Joseph A., .	Deputy chief, inspection department.	June 1, 1885	Jan. 31, 1912	Retired. ¹

¹ Retired under Veterans' Retirement Act of 1907, chapter 458.

² Retired under Employees' Retirement Act of 1911, chapter 532.

³ Retired under District Police Pension Act of 1911, chapter 675.

APPOINTMENTS.

NAME.	Position.	Date of Appointment.	Date commenced Duty.
Bragdon, Percy B., .	Inspector of boilers, ...	Mar. 14, 1912	Mar. 25, 1912
Christenson, Elmer I.,	Inspector of factories and public buildings.	July 8, 1912	July 11, 1912
Cliffe, Sydney H., .	Inspector of factories and public buildings.	July 8, 1912	July 13, 1912
Grant, Edward, . .	Inspector of factories and public buildings.	July 8, 1912	July 15, 1912
Kimball, Arthur S., .	Fire inspector, detective department.	June 21, 1912	June 26, 1912
Macksey, James J., .	Detective, ...	Apr. 1, 1912	Apr. 1, 1912
Maxwell, Annie R., .	Clerk, ...	June 1, 1912	June 1, 1912
Mitchell, Herbert E., .	Inspector of boilers, ...	Sept. 6, 1912	Sept. 18, 1912
Mores, Edward A., .	Inspector of boilers, ...	Mar. 14, 1912	Mar. 25, 1912
Murray, William F., .	Fire inspector, detective department.	Sept. 6, 1912	Sept. 12, 1912
Nelligan, Maurice P., .	Fire inspector, detective department.	June 21, 1912	June 30, 1912
Richardson, George E.,	Inspector of boilers, ...	Mar. 14, 1912	Mar. 25, 1912
Skoglund, Charles, .	Inspector of boilers, ...	Mar. 12, 1912	Mar. 25, 1912
Vaughan, Arthur J., .	Inspector of factories and public buildings.	Apr. 10, 1912	Apr. 15, 1912
Waterman, Benjamin S.,	Inspector of boilers, ...	Mar. 14, 1912	Mar. 25, 1912

TRANSFERS.

NAME.	From.	To.	Date of Transfer.
Daly, Joseph V., .	Fire inspector, detective department.	Detective, .	Sept. 1, 1912
Merriam, Frederick W.,	Inspector of factories and public buildings.	Deputy chief, inspection department.	Feb. 15, 1912

ROSTER OF THE FORCE.

JOPHANUS H. WHITNEY, *Chief.*

GEORGE C. NEAL, *Deputy Chief, Detective and Fire Inspection Department.*

FREDERICK W. MERRIAM, *Deputy Chief, Inspection Department.*

CHARLES F. RICE, *Chief Fire Inspector.*

GEORGE A. LUCK, *Acting Chief Inspector of Boilers.*

DETECTIVE AND FIRE INSPECTION DEPARTMENT.

Detectives.

NAME.	Assigned.	Office.
Barrett, Michael J., . .	Tramp officer, ...	Boston.
Bligh, Thomas E., . . .	Hampden and Berkshire counties, ...	Pittsfield.
Bradford, Ernest S., . .	Barnstable County, ...	Hyannis.
Daly, Joseph V., ...	Franklin and Hampshire counties, ...	Northampton.
Dexter, Thomas A., . . .	Dukes and Nantucket counties, ...	Edgartown.
Flynn, Frederick F., . . .	Essex and Middlesex counties, ...	Lawrence.
Grady, James J., ...	District 6, ...	Boston.
Hardiman, Frank P., . . .	Unassigned, general work, ...	Boston.
Keating, Arthur E., . . .	Suffolk County, ...	Boston.
Macksey, James J., ...	Bristol County, ...	Taunton.
Molt, Robert E., ...	Worcester County, ...	Worcester.
Proctor, William H., . . .	Steamer "Lexington" and general duty, ...	Boston.
Scott, John H., ...	Norfolk and Plymouth counties, ...	Braintree.
Smith, Silas P., ...	Middlesex County, ...	Cambridge.
Wells, Arthur G., ...	Essex County, ...	Lynn.

Fire Inspectors.

Anderson, James, ...	District 1, ...	Springfield.
Collamore, Henry H., . . .	District 3, ...	Fall River.
Crittenden, George F., . . .	District 4, ...	Northampton.
Eustace, Thomas F., ...	District 2, ...	Boston.
Kimball, Arthur S., ...	District 3, ...	Boston.
Murray, William F., ...	Unassigned, general work, ...	Boston.
Nelligan, Maurice P., ...	Unassigned, general work, ...	Boston.
Sherlock, Edward J., ...	Unassigned, general work, ...	Boston.
Thompson, Thomas A., ...	District 5, ...	Boston.

INSPECTION DEPARTMENT.

Building Inspectors.

NAME.	Assigned.	Office.
Adams, Charles, . . .	District 9, ...	Worcester.
✓ Atkinson, Harry, . . .	Special duty, ...	Boston.
Ball, Horace F., . . .	District 4, ...	Boston.
✓ Beyer, Richard S., . . .	District 2, ...	Salem.
Burfitt, Charles E., . . .	District 3, ...	Boston.
Casey, John F., . . .	District 12, ...	North Adams.
✓ Cheney, Ansel J., . . .	District 1, ...	Salem.
Cleveland, Ernest E., . . .	District 11, ...	Springfield.
✓ McKeever, William J., . . .	District 5, ...	Boston.
✓ Penniman, Walter A., . . .	District 10, ...	Worcester.
✓ Plunkett, John H., . . .	District 6, ...	Boston.
✓ Pope, Lemuel, . . .	District 7, ...	Fall River.
✓ Saunders, Frank W., . . .	District 8, ...	Fall River.

Factory and Workshop Inspectors.

✓ Cairns, William H., . . .	District 12, ...	Fall River.
✓ Carey, Jeremiah J., . . .	District 2, ...	Lowell.
Christenson, Elmer F., . . .	District 4, ...	Boston.
Clerke, Charles S., . . .	District 6, ...	Boston.
Cliffe, Sydney H., . . .	District 15, ...	North Adams.
Cobb, Joseph F., . . .	District 9, ...	Boston.
Dam, Charles A., . . .	District 13, ...	Worcester.
Dexter, John R., . . .	District 11, ...	Fall River.
Goff, Andrew M., . . .	District 10, ...	Boston.
Grant, Edward, . . .	District 8, ...	Boston.
Howes, James R., . . .	District 14, ...	Springfield.
✓ Lewis, Elmer, . . .	District 3, ...	Boston.
✓ McDonald, Angus H., . . .	District 1, ...	Salem.
Roach, Arthur F., . . .	Special duty, ...	Springfield.
✓ Ryan, Everett E., . . .	District 5, ...	Boston.
Vaughan, Arthur J., . . .	District 7, ...	Boston.
Halley, Mary E., . . .	Special duty, ...	Lowell.
Nason, Mary A., . . .	Special duty, ...	Boston.

Boiler Inspectors.

✓ Baxter, Sturgis C., . . .	District 10, ...	Boston.
Bragdon, Percy B., . . .	District 12, ...	Fall River.
Bushek, Henry, . . .	District 1, ...	Salem.
DeShazo, James B., . . .	District 13, ...	Worcester.
✓ Evans, James W., . . .	District 8, ...	Boston.
Ferguson, Charles, . . .	District 5, ...	Boston.
Forbush, Franklin L., . . .	District 17, ...	North Adams.

Boiler Inspectors — Concluded.

NAME.	Assigned.	Office.
✓ Harlow, Willis A., . . .	Special duty, ...	Boston.
Hinckley, Frank C., . . .	District 18, ...	Pittsfield.
✓ Kearney, John B., . . .	Special duty, ...	Boston.
Lovering, Arthur F., . . .	District 16, ...	Northampton.
✓ Mackintosh, George D., . .	District 7, ...	Boston.
✓ ~~McGrath, John,~~	District 9, ...	Boston.
Mitchell, Herbert E., . . .	Special duty, ...	Boston.
✓ Moran, Edward, ...	District 3, ...	Lowell.
✓ Mores, Edward A., ...	District 6, ...	Boston.
✓ Morton, Harry E., ...	District 14, ...	Worcester.
✓ Ramsay, William W., . . .	District 2, ...	Salem.
Richardson, George E., . . .	Special duty, ...	Springfield.
Sanborn, Freeman H., . . .	District 15, ...	Springfield.
✓ Simm, Wilbert E., ...	Special duty, ...	Boston.
✓ Skoglund, Charles, ...	District 4, ...	Boston.
Sullivan, Herbert A., . . .	District 11, ...	Fall River.
✓ Waterman, Benjamin S., . .	Special duty, ...	Boston.

CLERKS.

FREDERICK W. MACER, *First.*FRANK K. HAHN, *Second.*

STENOGRAPHER.

ETTA M. KENNEDY.

DETECTIVE AND FIRE INSPECTION DEPARTMENT.

Clerk.

FRANCIS W. FOGARTY.

Stenographers.

JOHN I. ADAMS.

MARY E. BUXTON.

JOHN W. GILMARTIN.

INSPECTION DEPARTMENT.

Clerks.

JACOB W. POWELL.

LEWIS P. FALL.

MARY M. KANE.

ANNIE R. MAXWELL.

ETTA F. REYNOLDS.

MARY W. FISHER.

NELLIE M. QUINN.

Stenographers.

MARGARET A. DIVINEY.

VERONICA A. LYNCH.

STOREHOUSE.

TERRENCE MCSWEENEY, *Keeper.*

OFFICES.

Central,	.	.	.	.	.	Boston, .	.	.	.	.	.	State House.
						Salem, .	.	.	.	.	.	12 Kinsman Block.
						Lowell, .	.	.	.	.	.	71 Central Block.
						Worcester, .	.	.	.	.	.	476 Main Street.
						Fall River, .	.	.	.	.	.	Hudner Building.
Branch, .	.	.	.	.	.	Springfield, .	.	.	.	.	.	21 Besse Place.
						North Adams, .	.	.	.	.	.	Kimbell Block.
						Northampton, .	.	.	.	.	.	Masonic Building.
						Pittsfield, .	.	.	.	.	.	Court House.

RECOMMENDATIONS.

The inspection department of this force now consists, as has been before stated, of one deputy chief and fifty-six inspectors; the inspectors being divided into thirty-one inspectors of factories and public buildings, and twenty-five boiler inspectors. By the provisions of chapter 726, Acts of 1912, being An Act to establish a State Board of Labor and Industries, such act taking effect on June 1, 1913, thirteen of the thirty-one inspectors of factories and public buildings are to be transferred to such Board, together with the duties pertaining to the inspection of industrial establishments. This will leave eighteen such inspectors in this department to perform the duties of inspectors of public buildings, and the inspection department will then consist of one deputy chief and forty-three inspectors; eighteen of the inspectors being building inspectors and twenty-five being boiler inspectors.

In view of the foregoing facts, I would respectfully recommend that the inspection department be divided into two departments, to be designated, respectively, as the building inspection department and the boiler inspection department of the District Police; the building inspection department to consist of a deputy chief and eighteen inspectors of buildings, and the boiler inspection department to consist of one chief inspector, with the rank of deputy chief, and twenty-four boiler inspectors; each member of the respective departments to be appointed by the Governor, and may be removed by him for cause. The clerical force of such departments to consist of two stenographers for service in the building inspection department, and three stenographers for service in the boiler inspection department, one of whom shall act as secretary to the Board of Boiler Rules; and six stenographers for service, one in each of the branch offices of the District Police Force. The clerical force to be appointed by the Chief of the District Police. This division to take effect on June 1, 1913.

Chapter 108, Resolves of 1912, provides that there may be expended from the Treasury of the Commonwealth by the Chief of this force the sum of \$2,500 for the employment of expert assistance to aid in the enforcement of the provisions of the statutes relative to explosives and inflammable fluids and compounds. Under the provisions of this statute an expert has been employed, and he has rendered great assistance in connection with the duties for which he was appointed. As it will be necessary that such assistance be continued, I would respectfully recommend that a similar appropriation be granted for such purpose.

APPROVAL OF LICENSES FOR ENTERTAINMENTS
GIVEN ON THE LORD'S DAY.

In compliance with the provisions of chapter 385, Acts of 1908, being An Act relative to the observance of the Lord's day, it is my duty as Chief of this force to approve in writing all licenses granted for public entertainments to be held on the Lord's day, if, in my opinion, such entertainments are in keeping with the character of the day and not inconsistent with its due observance.

In order to properly carry out the enforcement of the provisions of this statute, I deemed it necessary to issue certain general regulations, copies of which have been furnished from time to time to the managers of the various establishments in which public entertainments are held upon the Lord's day. The following are the regulations now in force: —

1. Under the provisions of chapter 385, Acts of 1908, the mayor of a city or the selectmen of a town may grant licenses for public entertainments to be held on the Lord's day to which admission is to be obtained upon the payment of money or some other pecuniary or valuable consideration; but, before the licensee is permitted to give such entertainment, it must be approved in writing by the chief of the district police as being in keeping with the character of the day and as not inconsistent with its due observance.

2. Chapter 189, Acts of 1909, approved March 18, 1909, provides that: —

Every application to the chief of the district police, under the provisions of section one of chapter ninety-eight of the Revised Laws, as amended by section one of chapter four hundred and sixty of the acts of the year nineteen hundred and four and by section one of chapter three hundred and eighty-five of the acts of the year nineteen hundred and eight, for his approval of an entertainment proposed to be given on the Lord's day shall be accompanied by a fee of one dollar.

3. The managers of entertainments to be held on the Lord's day shall make application for the license to the mayor of the city or selectmen of the town, and will be held strictly responsible for the proper conduct of the audience and of the artists, and shall not

allow any indecent or suggestive language or situations upon the stage.

4. The application, program and license forms shall be of standard size ($8\frac{1}{2}$ " x 11"), and may be obtained from the State printers, Wright & Potter Printing Company, 18 Post Office Square, Boston, at the following rates:—

1 set,	3 blank forms,	.	.	.	.	.	.	.	\$0 25
5 sets,	15 blank forms,	.	.	.	.	.	.	.	0 75
10 sets,	30 blank forms,	.	.	.	.	.	.	.	1 20
25 sets,	75 blank forms,	.	.	.	.	.	.	.	2 25
50 sets,	150 blank forms,	.	.	.	.	.	.	.	3 00
100 sets,	300 blank forms,	.	.	.	.	.	.	.	4 50
Each additional 100 sets (extra),		.	.	.	.	.	.	.	3 00

(Each set includes 1 application, 1 program, and 1 license.)

5. Each application forwarded to the Chief of the District Police for approval shall be in duplicate, and shall be accompanied by a complete program, in duplicate, of the proposed entertainment and by the license, also in duplicate, properly signed by the mayor of the city or a majority of the selectmen of the town.

6. *A fee of \$1 must accompany each application forwarded to the Chief of the District Police for his approval.*

7. Each license submitted for approval, together with the necessary papers specified in section 5 of these regulations, must reach the office of the Chief of the District Police *before 12 o'clock noon on the Friday preceding the Sunday upon which the entertainment is to be given.*

8. The program shall show in detail the nature of the entertainment, the correct titles of all songs (*parodies of any nature on songs are strictly prohibited*), titles of moving pictures, names of makers of moving pictures, names of artists, and a description of the dress worn; also, where a production, dramatic or operatic, or where a sketch is included in the program, a synopsis must be furnished for each and every drama, opera or sketch so included.

9. Only such titles of moving pictures shall appear upon the program as are included in the List of Approved Moving Picture Films, dated June 10, 1911, and the Supplementary Lists issued from week to week subsequent thereto. The titles of moving pictures and names of makers, shown on the program, must conform to the titles and names as given in such lists.

10. No advertising card shall be used in connection with a muto-scope, penny-in-the-slot machine, or similar device, and no picture shall be displayed in any such machine or device unless such card or picture has been stamped "approved" by the Chief of the District Police.

11. The entertainment shall be limited to the numbers shown upon the approved program, and no change shall be made in any program without the permission of the mayor of the city or the selectmen of the town granting the license, and of the Chief of the District Police, and such permission must be obtained *prior* to the time the entertainment is given.

12. A license will not be approved for a longer period than one Lord's day.

13. All entertainments shall be in keeping with the character of the Lord's day and not inconsistent with its due observance.

14. No entertainment shall commence before 1 o'clock P.M. nor terminate later than 11 o'clock P.M.

15. No person or persons shall be permitted to attract the attention of the public by announcements, and no musical device or instrument shall be played at the entrance of any place of entertainment.

16. No articles nor refreshments of any kind shall be offered for sale, and no smoking will be permitted.

17. Change of scenery shall not be made during the entire entertainment.

18. Artists appearing upon the stage must be properly clothed. No female shall appear in male attire, nor in tights, nor in skirts which do not reach to the ankles. No male shall appear in female attire.

19. No suggestive action or word shall be introduced into any monologue or song. Any artist violating this regulation will thereafter be prohibited from appearing in any entertainment held on the Lord's day in this Commonwealth.

20. No entertainment shall be given in which there is an element of chance.

21. Ice or roller-skating rinks, dancing in any form, juggling, aerobatic, contortion, animal, magic or illusion acts will not be permitted.

22. Firearms shall not be used.

23. There shall be no ring-pulling nor candy-grabbing in connection with merry-go-rounds.

24. No mechanical apparatus for discharging compressed air will be permitted.

25. Each mutoscope or other machine or apparatus of such nature that the person using the same breathes or speaks into it, or, for the purpose of seeing or hearing, holds any part thereof in contact with or near to his eyes or ears, shall be disinfected, in such manner as shall be approved by the local board of health, at least twice during such hours, in every twenty-four hours, that such mutoscope or other machine or apparatus is offered for the use of the public.

26. No lung-testing machine nor similar contrivance, the use of

which requires the application of any part thereof to the lips, shall be used.

27. No minor shall be admitted, without the written consent of his parent or guardian, to any place in which pictures are displayed upon deposit of money in a nickel-in-the-slot machine or penny-in-the-slot machine, or in any similar device; and no picture displayed in such machine or machines shall portray any melodramatic, sensational or immoral scenes or situations.

28. No child under the age of fourteen years shall be admitted after 6 o'clock in the afternoon, unless accompanied by a person above the age of twenty-one years.

29. The respective statutes relating to theatres, public halls or other places of assemblage must be complied with.

30. The violation of any of these regulations will be considered sufficient cause for the disapproval of subsequent license or licenses.

These regulations supersede the regulations issued July 1, 1910.

In accordance with these regulations there have been forwarded to me, during the year, by the mayors of the cities and the selectmen of the towns specified in the following list, 7,377 licenses for my approval, accompanied by the applications and programs; the average weekly number of such licenses was 140, the largest number received in any one week being 217, and the lowest being 96. In accordance with the provisions of chapter 189, Acts of 1909, a fee of \$1 has been received with each application forwarded for such action, the sum of \$7,377 having been received during the period named, which amount has been paid to the Treasurer of the Commonwealth.

The following is a list of the cities and towns forwarding, for my approval, licenses for Lord's day entertainments, the various numbers approved and disapproved by me being shown therein:—

CITY OR TOWN.	Ap- proved.	Not Ap- proved.	CITY OR TOWN.	Ap- proved.	Not Ap- proved.
Adams, ...	7	1	Methuen, ...	12	-
Agawam, ...	72	-	Milford, ...	2	-
Andover, ...	1	-	Montague, ...	111	-
Avon, ...	68	-	Nahant, ...	75	-
Billerica, ...	10	1	NEW BEDFORD, ...	57	-
Boston, ...	1,531	-	NEWTON, ...	125	-
Brookline, ...	1	-	NORTH ADAMS, ...	58	-
CAMBRIDGE, ...	21	-	NORTHAMPTON, ...	2	-
Canton, ...	1	-	Orange, ...	11	-
CHELSEA, ...	69	1	Palmer, ...	23	-
CHICOPEE, ...	227	-	Peabody, ...	60	-
Clinton, ...	8	1	Pembroke, ...	53	-
Dartmouth, ...	45	-	PITTSFIELD, ...	18	-
Dedham, ...	47	1	QUINCY, ...	62	-
Dighton, ...	16	-	Plymouth, ...	3	-
Dracut, ...	75	-	Revere, ...	650	1
FALL RIVER, ...	471	1	SALEM, ...	53	-
FITCHBURG, ...	24	-	Salisbury, ...	40	-
Framingham, ...	1	-	Saugus, ...	1	-
Gardner, ...	36	-	Shrewsbury, ...	149	-
GLOUCESTER, ...	84	-	SOMERVILLE, ...	3	-
Greenfield, ...	3	-	SPRINGFIELD, ...	234	1
Groveland, ...	21	-	Stoughton, ...	49	-
Haverhill, ...	238	-	TAUNTON, ...	29	-
Haydenville, ...	1	1	Tyngsborough, ...	5	-
HOLYOKE, ...	450	-	WALTHAM, ...	4	-
Hull, ...	200	-	Wareham, ...	37	-
Ipswich, ...	1	-	Watertown, ...	1	-
Lanesborough, ...	13	-	Webster, ...	87	-
LAWRENCE, ...	384	-	Westborough, ...	14	-
Lenox, ...	4	-	Westfield, ...	96	-
Lexington, ...	60	-	Westminister, ...	5	-
LOWELL, ...	490	1	Westwood, ...	11	-
Ludlow, ...	52	-	West Springfield, ...	1	-
LYNN, ...	319	3	Winthrop, ...	3	-
MALDEN, ...	1	-	WOBURN, ...	3	-
MARLBOROUGH, ...	39	-	WORCESTER, ...	69	1
Marshfield, ...	9	-	Wrentham, ...	13	-
Maynard, ...	1	-			
MEDFORD, ...	1	-			
Mendon, ...	32	-	Totals, ...	7,363	14

It may readily be understood that considerable additional work is placed upon the Chief and other members of this force in properly carrying out the provisions of this statute, for not only is it necessary to carefully check the programs submitted with the licenses each week, in order to prevent a possibility of approving some form of entertainment thereon which would not be consistent with the due observance of the day, but it is also necessary to visit on each Lord's day many of the various establishments in which the entertainments are being held, to ascertain if the regulations governing such entertainments are fully complied with, and that no class of entertainment is given other than that which is specified on the approved program. On each Lord's day throughout the year I have visited a number of the entertainments held in the city of Boston; also during the sum-

mer season those held in the towns of Revere and Nantasket, in which towns a considerable number of such entertainments are held. In addition to my personal visits I have detailed during the year various members of the force for similar duty in their respective districts.

Whenever a report has been made to me that a licensee has violated any of the regulations governing the approval of the Lord's day entertainments, or has not fully complied with any of the conditions under which his license has been approved, a member of the force has been detailed to investigate and report promptly. Very few indeed have been the reports of such violation, and, in nearly every case, investigation has shown that ignorance of the regulations and conditions rather than intentional disregard of them has been the cause.

Probably 80 per cent. of the entertainments given upon the Lord's day are largely made up of the exhibition of moving pictures, in consequence of which it was found necessary that action should be taken to prevent the possibility of approval being granted to display moving pictures illustrating scenes and actions, which, although not improper for other days of the week, would be highly improper for exhibition on the Lord's day. Arrangements were accordingly made with the various moving-picture agencies that all moving-picture films which they desired to furnish to managers of entertainments given upon the Lord's day should be brought to the State House on Wednesdays and Fridays of each week, there to be displayed in the rooms used for the examination of applicants for moving-picture operators' licenses, in order that such moving pictures might be censored. This method has been in vogue during the past three years, and the result has been very satisfactory to all concerned. While the respective agencies have forwarded only such films as they were of opinion would be approved for Lord's day entertainments, a large number of those forwarded were not approved; during the past twelve months 1,950 films have been displayed, of which but 1,364, or 69 per cent., have been approved.

In order that the managers of the various establishments

in which moving-picture entertainments are given on the Lord's day may know which of the moving pictures have been approved, a list is made out each Monday of the titles of moving pictures approved during the preceding week, and a copy of such list is forwarded on that day to the manager of each of such establishments.

There are, of course, many persons who have requested the Chief of this force to disapprove the license for every kind of public entertainment given upon the Lord's day, while others advocate the approval of every license covering any kind of entertainment on that day. It is, however, gratifying to be able to state that the number of complaints which have been received, in connection with the general conduct of the entertainments given throughout the Commonwealth on the Lord's day, has been very small; from which it would appear that the present method of procedure is giving general satisfaction.

RELATIVE TO THE EXHIBITION OF MOVING PICTURES.

The exhibition of moving pictures is apparently crowding out the old-time theatrical entertainments, and a majority of the theatres, public halls and places of public entertainment in this Commonwealth are now fitted with booth and apparatus for the display of moving pictures. It has been stated that in this country alone there are more than 30 studios producing moving-picture films, their product being furnished to more than 17,000 places of amusement throughout the country; and that more than 230,000,000 feet of film were placed upon the American market during the past twelve months.

Few persons were interested in moving pictures at the time of their introduction, some seventeen years ago, and by many they were considered merely as a curiosity. During the past five or six years, however, the advance made in production and the many uses to which they are now placed has been apparently unsurpassed by any human invention. Moving-picture houses are multiplying rapidly in the various cities and towns of this Commonwealth, and the patrons of these places undoubtedly number millions.

When moving pictures were first introduced into the public entertainments of this Commonwealth it was immediately discovered that a new element of fire hazard was thereby brought into places of public assemblage; the necessity for legislative action was at once apparent, and the Legislature of 1905 enacted the following statutes: —

CHAPTER 176, ACTS OF 1905.

AN ACT TO REGULATE THE USE OF THE CINEMATOGRAFH.

SECTION 1. No cinematograph, or other similar apparatus involving the use of a combustible film more than ten inches in length, shall be kept or exhibited on premises licensed for entertainments, until such cinematograph or other similar apparatus has been inspected and approved by the district police, and until such precautions against fire as the district police may designate have been taken by the owner, user or exhibitor of such cinematograph or other similar apparatus.

SECTION 2. The district police are hereby empowered and directed to inspect any cinematograph or other similar apparatus involving the use of combustible films more than ten inches in length which is used or kept on premises licensed for entertainments, and to make such rules and regulations as they may deem necessary for the safe use of such apparatus.

SECTION 3. Any person keeping, using or exhibiting a cinematograph or other similar apparatus contrary to the provisions hereof, or in violation of any rule or regulation made by the district police, shall be punished by a fine of not less than five nor more than five hundred dollars.

CHAPTER 437, ACTS OF 1905.

AN ACT TO REGULATE THE USE OF THE CINEMATOGRAPH IN CHURCHES AND OTHER PUBLIC BUILDINGS.

The provisions of chapter one hundred and seventy-six of the acts of the year nineteen hundred and five, being an act entitled "An Act to regulate the use of the cinematograph", shall apply to the use, keeping, exhibition and inspection of cinematographs which are to be used, kept or exhibited in any church or other public building, whether such use, keeping or exhibition is on premises licensed or not licensed for entertainments.

Upon the passage of the foregoing statutes, and in accordance with the provisions of section 2 of the first quoted, certain rules and regulations were issued by the then Chief of this force relative to moving-picture machines, their installation and operation; permits being granted under such regulations to persons to have charge of and operate such machines, the necessary requirements then being six months' experience and satisfactory evidence of ability. The growth of the moving-picture business increased so rapidly that further legislation of a more stringent character became necessary, and the following statutes were enacted by the Legislature of 1908: —

CHAPTER 565, ACTS OF 1908.

AN ACT RELATIVE TO THE USE OF MOVING PICTURE MACHINES.

SECTION 1. No person, firm, corporation or association of persons shall operate or cause to be operated, and no manager, owner or proprietor of a hall, theatre, or other place of amusement shall permit to be used or operated, in any hall, theatre, or other place of amusement, any machine or other device for the projection of pictures upon a screen or other substance for a period exceeding

twenty minutes for each film, picture, or series of pictures. Every person, firm, corporation or association of persons operating or owning such machines shall, after each film, picture, or series of pictures, or at the expiration of said period of twenty minutes, furnish some other form of amusement or entertainment for a period of not less than five minutes. But the provisions of this section shall apply only to moving picture machines, so-called, and shall not be construed to include machines or other devices for projecting pictures upon a screen or other substance, which pictures remain stationary thereon.

SECTION 2. Any person, firm, corporation, or association of persons violating any provision of this act shall be subject to a fine of not less than fifty dollars or to imprisonment for not less than six months.

CHAPTER 566, ACTS OF 1908.

AN ACT RELATIVE TO THE USE OF THE CINEMATOGRAPH.

SECTION 1. No cinematograph, or similar apparatus involving the use of a combustible film more than ten inches in length, shall be kept or exhibited on the premises of a public building, place of public assemblage, or place used for entertainment, whether such premises are licensed or not licensed for entertainments, unless the district police have inspected and approved such cinematograph or other similar apparatus, and have placed thereon a numbered metal tag, nor until such precautions against fire as the district police may specify have been taken by the owner, user or exhibitor of such cinematograph or other similar apparatus. In addition, in the city of Boston the location of the cinematograph or other similar apparatus and of any booth or structure surrounding said apparatus shall be approved by the building commissioner, who may order such additional precautions against fire as he may deem necessary.

SECTION 2. The district police are hereby empowered and directed to inspect any cinematograph or other similar apparatus involving the use of a combustible film more than ten inches in length which is used or kept on premises designated in section one, and to make such rules and regulations as they may deem necessary for the safe use of such apparatus.

SECTION 3. Any person keeping, using or exhibiting a cinematograph or other similar apparatus contrary to the provisions hereof, or in violation of any rule or regulation made by the district police, or, in the city of Boston, in violation of any regulation or requirement made by the commissioner of buildings, in accordance with the provisions hereof, shall be punished by a fine of not less than twenty-five nor more than five hundred dollars.

SECTION 4. No person shall exhibit or operate any cinematograph or similar apparatus involving the use of a combustible film

more than ten inches in length until he has received a license so to do from an inspector of the district police. The fee for the license shall be three dollars. The license shall be for the term of one year from the date thereof, but may be renewed yearly without examination, upon the payment of a fee of one dollar. The license may be revoked at any time by any member of the district police, but the person whose license is so revoked may appeal to the chief of the district police, whose decision in the matter shall be final.

SECTION 5. When a licensee under this act desires to have an assistant he shall register the name, age, address and personal description of such assistant, on a form prepared for the purpose by the chief of the district police, and thereupon the said chief may issue a permit allowing such person to be employed as an assistant to rewind or repair moving picture films or apparatus, and to assist the licensee in the booth or other place where the moving picture is operated, but such person shall not himself operate or handle any moving picture machine. No person under the age of eighteen years shall act as such assistant.

SECTION 6. All licenses heretofore issued for the operation¹ of any cinematograph or similar moving picture machine hereinbefore defined shall expire sixty days after the passage of this act.

SECTION 7. All acts and parts of acts inconsistent herewith are hereby repealed.

For the proper enforcement of the provisions of these statutes, and in accordance therewith, revised regulations were issued by the Chief of this force, which, among other requirements, provided that a booth should be furnished and used, specifying certain requirements for the construction of different types of such booth. Also at this time a moving-picture machine and booth were installed in the subbasement of the State House, for use in the examination of applicants for licenses as moving-picture operators, as provided in the statutes; and every operator holding a permit under the original regulations was required to appear for a further and more practical examination.

The following is a comparative statement of the number of applicants for moving-picture machine operators' licenses, inspections of moving-picture machines, and inspections of moving-picture machine booths received during the past seven years, or since the enactment of the first statute relative to the exhibition of moving pictures:—

YEAR.	MOVING-PICTURE MACHINES.		
	Applications for Licenses to operate.	Inspections of.	In- spections of Booths for.
1905, ...	26	87	-
1906, ...	281	256	-
1907, ...	405	430	-
1908, ...	1,036	344	315
1909, ...	1,207	220	167
1910, ...	1,090	164	114
1911, ...	625	144	124
1912, ...	564	204	124

Owing to the large increase of work and the added expense to the Commonwealth in carrying out the provisions of these statutes, I recommended, in my annual report of 1908, that a fee of \$3 should accompany each application for examination for a moving-picture operator's license, that a fee of \$1 should also be charged for each permit issued to an assistant operator, and a like fee of \$1 for the inspection and approval of a moving-picture machine. In accordance with such recommendation, chapter 281, Acts of 1909, was enacted, which statute was later amended by chapter 48, Acts of 1911, the amendment providing for an increase in the fee for the inspection of a moving-picture machine from \$1 to \$2, and for a fee of \$2 for the inspection and approval of a moving-picture machine booth. Such statute reads as follows:—

CHAPTER 281, ACTS OF 1909.

AN ACT RELATIVE TO THE INSPECTION OF CINEMATOGRAPHS AND SIMILAR APPARATUS, AND TO THE LICENSING OF OPERATORS THEREOF.

SECTION 1 [as amended by Acts of 1911, chapter 48]. For the inspection of a cinematograph or similar apparatus involving the use of a combustible film more than ten inches in length, as provided by section one of chapter five hundred and sixty-six of the acts of the year nineteen hundred and eight, a fee of two dollars shall be paid by the owner or user thereof. For the inspection of a booth or enclosure for a cinematograph or similar apparatus a fee of two dollars shall be paid by the owner or user thereof.

SECTION 2. A fee of three dollars shall accompany the application

for examination for a license to exhibit or operate any cinematograph or similar apparatus involving the use of a combustible film more than ten inches in length, as provided by section four of said chapter five hundred and sixty-six.

SECTION 3. A fee of one dollar shall accompany the application for a permit as an assistant, as provided by section five of said chapter five hundred and sixty-six.

SECTION 4. All acts and parts of acts inconsistent herewith are hereby repealed.

SECTION 5. This act shall take effect upon its passage.

The following are the regulations now in force, taking effect Nov. 1, 1912:—

REGULATIONS RELATING TO THE EXHIBITION OF MOVING PICTURES.

Booths or Enclosures.

SECTION 1. A booth or enclosure, as provided in these regulations, shall be installed; such booth or enclosure must be inspected and receive a certificate of approval from an inspector of the inspection department of the district police before being used. The booth shall be so located as not to obstruct any aisle or passageway, or to obstruct or render dangerous any egress from the exhibition room, hall or building. Sufficient means shall be provided to allow the operator safe entry to and exit from booth; the door of booth shall be kept closed during the time the public are admitted to the exhibition room or hall.

SECTION 2. The standard booth shall be at least 7 feet high inside, the floor space to vary according to the number of machines, as follows: No. 1 booth, for one picture machine, 6 feet by 8 feet; No. 2 booth, for one picture machine and one stereopticon, or two picture machines, 9 feet by 8 feet; No. 3 booth, for two picture machines and one stereopticon, 12 feet by 8 feet, inside.

SECTION 3. The frame shall be made of iron or steel, as follows:—

(a) Angles forming the framework of the panels shall be $1\frac{1}{4}$ inches by $1\frac{1}{4}$ inches by $\frac{3}{16}$ inch.

(b) Tees may be substituted for angles, provided the tees are equal to the combined size of two angles.

(c) Angles for door frame shall be 1 inch by 1 inch by $\frac{3}{16}$ inch.

(d) Gusset plates at joints shall be $\frac{3}{16}$ inch thick, and shall be riveted or bolted to each angle or tee by at least two $\frac{1}{4}$ -inch rivets or bolts at each end.

(e) Strap iron pieces for covering horizontal joints shall be 2 inches by $\frac{1}{2}$ inch (offset the thickness of the angles or tees so as to give a full bearing across the asbestos board sheets), and shall be

riveted to the angles or tees by at least two $\frac{1}{4}$ -inch rivets at each end, and bolted to each asbestos sheet approximately every 6 inches.

(f) Angles for shelf brackets shall be not less than 1 inch by $\frac{1}{16}$ inch.

SECTION 4. The sides and top of booth and door shall be covered with asbestos boards (asbestos sheet millboard, so called, will not be permitted in any case) of at least $\frac{1}{4}$ inch in thickness, said sheets to be so cut and arranged that there will be no vertical joints in the panels, and that the horizontal joints shall come over the strap iron, as provided for above. The asbestos sheets shall be secured to the angle or tee framework and to the strap iron strips by $\frac{3}{16}$ -inch bolts, nuts and washers, spaced approximately 6 inches on centers.

SECTION 5. Floor of the booth shall consist of sheets of asbestos board of at least $\frac{3}{8}$ inch in thickness, of size to extend to the outside of the angles forming the sills to the booth, placed upon tight $\frac{7}{8}$ -inch underflooring or platform, and securely bolted or screwed in place. Joints in flooring sheets must be filled with asbestos plastic cement.

SECTION 6. There shall be not more than two windows for each machine in the booth, — one for the operator and one for the machine. The window for machine shall be not more than 6 inches high by 12 inches wide; the operator's window shall be not more than 12 inches high by 4 inches wide.

SECTION 7. All windows shall have gravity slides, sufficient to cover the opening for at least 1 inch on all sides, to slide in metal runs, made of No. 28 B. & S. gauge galvanized iron, and metal socket at the bottom, made in the same way, having an iron plate of same material on the asbestos back of the guide, and the slides to be bound with the same, so that metal will run freely in metal in all cases. In addition thereto there shall be a special approved releasing device, with fusible link inserted, within easy reach of the operator, by which the combustible cord holding the slides may be quickly released by the hand. Any method requiring the breaking of the string for releasing the shutters is not considered sufficient.

SECTION 8. The doorway shall be 2 feet wide by 6 feet high. The door shall have a substantial spring, sufficient to keep it closed, and shall be hinged to the frame, so that it will swing freely, and have strap iron 2 inches by $\frac{1}{8}$ inch extending the entire height and across top of the door for a door stop, and be supplied with lock.

SECTION 9. The shelves shall be made up of slate slabs or of boards not less than $\frac{7}{8}$ inch thick, with $\frac{1}{4}$ -inch asbestos board on top, not exceeding 4 feet in length or 12 inches in width. Said shelves, if of boards, shall be painted with at least three coats of asbestos paint. Upper shelf shall be used for the rewinding and repairing of films; lower shelf shall be used for the storage of films.

SECTION 10. The exposed joints between the asbestos board sheets

in the ceiling of the booth shall be covered on the under side as well as on the upper side by strap irons, 2 inches by $\frac{1}{8}$ inch, bolted through.

SECTION 11. The portable feature of the booth with frame made of angles is secured by making the sides, bottom and top in panel form. These panels, of suitable size, are bolted together to form the booth. The bolts used for fastening the panels together are to be spaced not more than 2 feet pitch and to be at least $\frac{1}{4}$ -inch diameter. After bolting the panels together, the joints shall be filled with asbestos plastic cement. The panels forming the sides of the booth are interchangeable, and thus the panel containing the door may be placed on either the right-hand or the left-hand side of the booth; but the door panel must never be placed front of the center of the booth, except with special written permission from the inspector.

SECTION 12. For ventilation, booths shall be provided with an inlet in each of the four sides, 15 inches long by 3 inches high, the lower side of the same not to be more than $2\frac{1}{2}$ inches above floor level, and shall be covered on the inside by wire netting of not greater than $\frac{1}{4}$ -inch mesh; netting shall be firmly secured to the asbestos board by means of iron strips and screws. In addition to the above there shall be an inlet in the floor of the booth, if possible, otherwise in the side or rear of the booth, not over $2\frac{1}{2}$ inches from the floor. Said opening shall be not less than 160 square inches for a No. 1 booth, 200 square inches for a No. 2 booth, and 280 square inches for a No. 3 booth, connected with the outside air through a galvanized-iron pipe with a pitch from the booth downward to the outside wall of the building. The opening shall be covered with a hood, so arranged as to keep out the storm, and the entrance to the booth shall be covered with a heavy grating over $\frac{1}{2}$ -inch heavy wire mesh, if in floor, or a $\frac{1}{2}$ -inch wire mesh, if in wall; and arranged with damper hinged at the bottom, with rod or chain to hold said damper in any position. Mesh and gratings shall be securely fastened in place, those in the walls to be bolted on as specified for the smaller inlets.

SECTION 13. Near the center of the top of the booth shall be a circular opening of sufficient diameter, the upper side of said opening to be provided with an iron flange, which flange shall be securely fastened to the tees supporting the roof. Securely fastened to this flange shall be a vent pipe of not less than 12 inches in diameter for a No. 1 booth, 16 inches for a No. 2 booth, and 18 inches for a No. 3 booth, said pipe leading to the outside of the building, or to a special incombustible vent flue. In this vent pipe shall be placed an electric exhaust fan of sufficient size and so fitted as to permit of the examination or removal of the fan. Vent pipes shall be made of No. 26 B. & S. gauge galvanized iron, or other noncombustible

material. Fan shall be so connected that it can be controlled from within the booth. The location of the fan, in all cases, shall be designated by the inspector.

SECTION 14. The portable asbestos booth shall be at least $6\frac{1}{2}$ feet high by 5 feet square, and is permitted for use of one picture machine only.

SECTION 15. The frame shall be of standard pipe, angle ventilator trap and fittings; to conform strictly to the specifications herein set forth, and in each case shall be approved by the inspector. Four corner posts shall be of $\frac{3}{4}$ -inch standard pipe; eight horizontal members shall be of $\frac{1}{2}$ -inch standard pipe; eight corner fittings shall be made of malleable iron or bronze castings, and shall be constructed with braced corners. Ventilator trap shall be made of 1 inch by 1 inch by $\frac{1}{8}$ inch angles, to extend the full width of the top and 2 inches beyond the front of the top pipe, and securely hinged not less than 2 feet from the edge of the front. Corners shall be made of $\frac{1}{8}$ -inch gusset plates, bolted to each angle with $\frac{3}{16}$ -inch bolts.

SECTION 16. The sides shall be of pure asbestos cloth, weighing not less than two pounds to the square yard, of the same material as used for asbestos curtains; the same to be in one piece and large enough to easily lap over where it comes together around the booth, not less than 2 feet. This shall be held in place by substantial metal hooks over the top pipe, and shall be hooked with snap catches on to the bottom pipe. The hooks and bottom catches shall be not over 8-inch pitch. The side curtains shall be at least $7\frac{1}{2}$ feet high, so that they will lap on the floor. The top shall be covered with asbestos cloth, same as the sides, and shall be of sufficient size to hang down on all sides at least 8 inches; and shall be arranged with metal hooks or asbestos cord to hook or lace on to the pipe, to hold it in place. The floor shall be covered with an asbestos mat of same material, held in place, when in use, with heavy thumb tacks; and shall be not less than 1 foot larger than the booth, on all sides.

SECTION 17. Where the sides overlap one another, this place shall be left so as to allow a man to enter or leave the booth. All raw edges of asbestos cloth shall be bound or hemmed at least 1 inch deep.

SECTION 18. The top frame of the booth shall be fitted with the angle ventilator hereinbefore described, so as to be raised not less than 1 foot above the top pipe of the booth, and shall be so held by a toggle joint, or some approved device, whereby, in case of accident, it can be instantly dropped.

SECTION 19. The windows, two in number, one for the machine not larger than 6 inches high by 12 inches wide, and one for the operator not larger than 12 inches high by 4 inches wide, shall be supplied with shutters sewed to curtain at the top of opening, and

the lower edges of the same shall be weighted with $\frac{3}{8}$ -inch gas pipe, which shall be long enough to go the whole horizontal length of the shutter, and supplied with cord and fusible link, as specified for the standard booth, running through a screw eye tapped into the pipe frame over the openings. All shutters shall be of size to lap over curtain at least $1\frac{1}{2}$ inches on all sides.

SECTION 20. Each standard or portable booth shall be distinctly marked with the maker's name and a serial number, in 2-inch block letters and figures. The inspector's certificate of approval of a standard booth, together with a copy of the regulations, shall be conspicuously posted within the booth at all times, and the certificate of a portable booth, together with a copy of the regulations, shall be in the care of the operator whenever the booth is being installed or in use.

Machines and Wiring.

SECTION 21. The machine shall be located in the booth so that there shall be a clear space on the operator's side of the booth of at least 3 feet from the wall to the center of the machine. Where more than one machine is used in the booth, they shall be placed 3 feet and 6 inches on centers, and the center line of no machine shall be less than 2 feet from the wall of the booth.

SECTION 22. The machine shall be securely fastened to the floor, and no part shall come in contact with any inflammable or combustible material.

SECTION 23. The upper and lower magazines on the machine shall be constructed of sheet metal, and made tight without the use of solder, and each shall have two sets of metal rollers which shall fit as tightly as practicable to the film, as it passes out or in. The door to each shall be hinged and provided with a catch to hold it tightly closed.

SECTION 24. The arc lamp shall be covered with an iron box, so arranged as to catch all sparks and hot pieces of carbon, and all other lights in the booth shall be covered by wire guards.

SECTION 25. The film reels shall be operated by a crank firmly secured to the spindle or shaft on head of the machine, so that there will be no possibility of its coming off, except on motor-driven machines.

SECTION 26. A shutter shall be placed in front of the arc, so as to be instantly closed when necessary.

SECTION 27. Electric motors may be used for operating only on such machines as are especially fitted and approved for such use, in accordance with the following requirements:—

(a) The motor shall be securely attached to machine support, be

satisfactorily enclosed, and shall be separately fused and placed below the bottom line of lamp house.

(b) Electric current to operate both arc light and motor shall be controlled by one switch; an additional switch to control current to motor shall be installed, and so constructed as to spring open when not held closed by the operator.

(c) Both switches and the starting box shall be placed on the operating side of the machine, and at least 1 foot back from a perpendicular line of film exposure.

(d) All electrical devices shall be securely mounted on incombustible supports, and be enclosed satisfactorily to the inspector.

(e) The machine shall be so constructed or protected that while in operation, displaying a picture, the film cannot escape from the head enclosure or elsewhere except as the same is taken up by the lower magazine, and the crank shall be removed when motor-driven.

SECTION 28. Any change in mechanism, or alteration of any moving-picture machine, after it has been approved and tagged by an inspector, shall be cause for removal of the tag and condemnation of the machine. The removal of the inspector's tag shall be cause for condemnation of machine and prohibition of its use.

SECTION 29. If house lights are controlled from within the booth, an additional emergency control shall be provided near the main exit, and kept at all times in good condition. All wires in booths, except jumpers from the switch to rheostat, rheostat to lamp, and switch to lamp, shall be run in conduit with terminal bushings, junction boxes, outlet boxes and fuse boxes, with covers; all wire for machine lights to be not smaller than No. 6 for each arc, and, if more than one arc, are to be rated for 40 amperes per arc, and size figured by the latest underwriter's code. All jumpers above mentioned shall be asbestos-covered, stranded wire of size above mentioned, and fitted with terminals. One incandescent light will be allowed for each machine and one for the rewinding bench. All wire conduits in the booth shall have porcelain outlets and junction boxes, with covers screwed on. All angles, and where the conduit enters the junction box, shall be fitted with bushings. None but cartridge type of fuse shall be used inside the booth, and of not over 45 amperes, unless by special permission of the inspector.

SECTION 30. Where wires for conveying electricity pass into, or through, or rest on, any structure around the machine, ample insulation must be provided by the use of conduits, porcelain tubes or other insulating substance.

SECTION 31. All rheostats, resistance coils or other devices substituted for that purpose shall be properly insulated and secured in place, so that there will be no danger by overturning or short-circuiting the same. Rheostats, and devices used for that purpose, may be

located in an accessible place outside the booth, provided they are protected from all combustible material for a distance of 2 feet on all sides by $\frac{1}{4}$ -inch asbestos board, or in a $\frac{1}{4}$ -inch asbestos board box.

SECTION 32. No water rheostat will be allowed in any booth or structure surrounding the machine, or in any part of the building in which the machine is located.

Operator.

SECTION 33. The wire attachments shall be inspected by the operator before every exhibition, and 125 volts shall be the maximum permitted for use in operating the machine.

SECTION 34. A switch for shutting off or controlling the electric current shall be provided, and so placed as to be ready for instant use by the operator.

SECTION 35. No pieces of films or loose combustible material shall be allowed to remain in the booth, unless kept in a metal box made without solder; the booth must be kept in a clean condition at all times.

SECTION 36. No smoking shall be permitted in the booth, and no matches shall be allowed therein.

SECTION 37. No person shall be allowed within the booth except the owner, manager, operator or his assistant, while the premises are open to the public.

SECTION 38. All moving-picture operators shall have their licenses with them at all times when operating a machine, rewinding or repairing films, or when otherwise employed in the booth.

SECTION 39. No person shall be permitted to operate a motor-driven machine until he has received a special license therefor, which license will authorize the holder to operate either a motor or a hand-driven machine.

SECTION 40. An operator having an assistant, as provided in section 5, chapter 566, Acts of 1908, shall have the permit with him at all times while said assistant is employed in the booth. The permit shall be returned to the chief of the district police by the operator when the assistant ceases to be employed by him.

SECTION 41. Within twenty-four hours after any fire or accident occurring within the booth, the operator and manager of the exhibition shall send a written notice of said fire or accident to the chief of the district police, State House, Boston; also to the inspector of the district in which the fire or accident occurs.

General Provisions.

SECTION 42. No moving-picture exhibition shall be allowed in any room or building until a license from the chief of the district police, or a certificate from an inspector, has been obtained for said room or building; except that, in the city of Boston, the license, certificate or permit for the room or building and exhibition is to be issued by the person or persons duly authorized to issue said license, certificate or permit.

SECTION 43. A separate metal case, made without solder, shall be provided for each film when the same is not in the magazine or in the process of rewinding; said films shall be kept in these cases, or a combination box for holding not more than eight films, made of at least No. 22 galvanized iron, with a heavy spring door supplied with automatic catch when shut, may be used, the same having compartments so that only one reel can be placed in a compartment. All films must be repaired and rewound within the booth.

SECTION 44. A fire extinguisher of the carbonic acid gas pattern, in good working order, shall be provided and located inside the booth, ready for instant use.

SECTION 45. Carbon receptacles made of metal shall be used in the booth, under such conditions and in such a way as the inspector shall designate.

SECTION 46. A spot-light may be allowed in the booth, upon special permission of the inspector, but the opening for the same shall not be over 12 inches square, and shall be supplied with a shutter the same as the other openings, and hung with a separate cord and fusible link, and so arranged as to shut separately and be kept closed, except when in actual use; it shall be kept closed at all times when film is exposed in the booth.

SECTION 47. All members of the inspection department of the district police are directed to see that these regulations are enforced, and any violation of the laws of this Commonwealth relating to the exhibition of moving pictures, or of these regulations, shall be sufficient cause for prosecution, or the immediate revocation of the license of the operator, or the permit of his assistant.

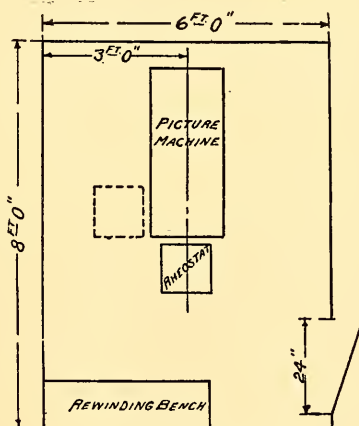
SECTION 48. Special permits, in accordance with the provisions of chapter 440, Acts of the year 1911, may be granted for exhibitions of moving pictures in churches, halls or other buildings, upon application to the chief of the district police, upon blanks furnished by him; such applications should be in his office at least one week before the date on which such exhibitions are to be given.

SECTION 49. For the exhibition of pictures in places of assemblage by the Home Kinetoscope or similar type of machine, requiring not more than 550 watts to operate the arc, and upon which a

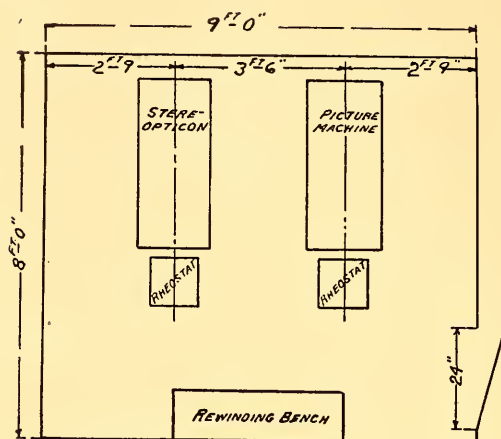
film not more than 100 feet in length and 1 inch in width is used, the use of a booth, as provided for in these regulations, will not be required; provided a mat made of asbestos cloth or other equivalent fire-resisting material, is placed under box containing machine when in operation; this mat to be so arranged as to be easily and quickly placed over machine, and of sufficient size to envelope the machine in case of accident to film. The machine must be inspected and tagged by an inspector. Persons desiring to exhibit pictures on this type of machine only will be granted a limited license for that purpose under the provisions of chapter 566, Acts of 1908.

SECTION 50. No changes in the foregoing regulations shall be made except by written permission of the chief of the district police; and all rules or regulations relating to the exhibition of moving pictures, heretofore promulgated, are hereby repealed. .

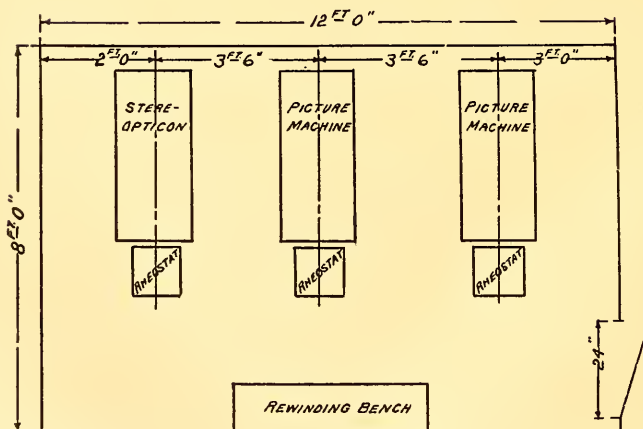
PLANS FOR STANDARD AND PORTABLE BOOTHS.



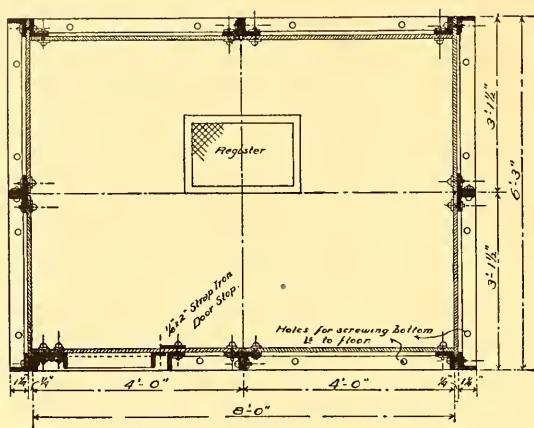
PLAN No. 1



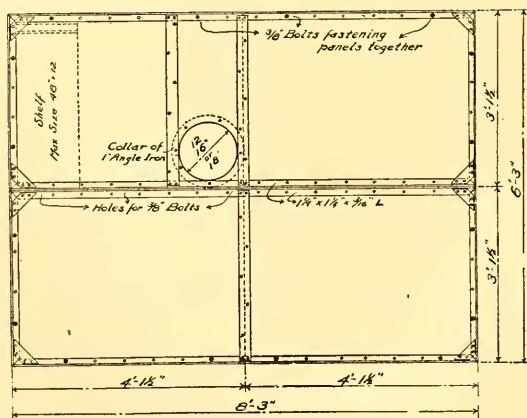
PLAN No. 2



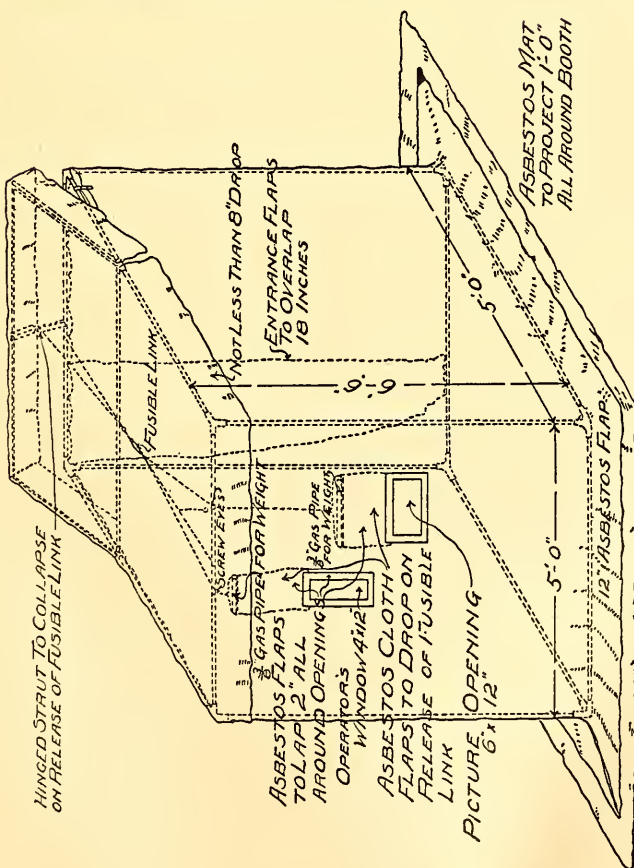
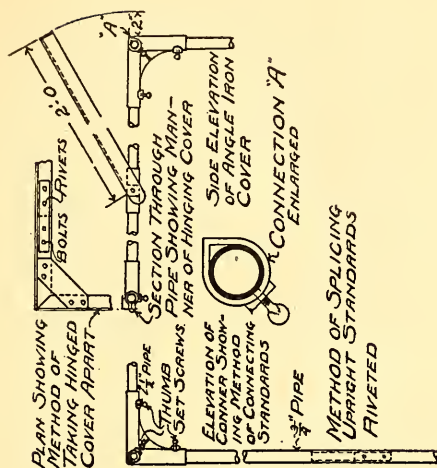
PLAN No. 3



Sectional Plan.



Roof Plan



ISOMETRICAL VIEW OF BOOTH.

As a very large number of applications were being made to me for permission to give moving-picture exhibitions in churches, halls and other buildings, not permanently fitted for such exhibitions, and realizing that it was necessary, before granting such permission, that a special inspection should be made by an inspector of this force, thus causing additional expense to the Commonwealth, I recommended in my annual report of 1910 that a fee of \$2 should accompany each application so forwarded. In accordance with such recommendation the following statute was enacted:—

CHAPTER 440, ACTS OF 1911.

AN ACT TO AUTHORIZE THE CHIEF OF THE DISTRICT POLICE TO GRANT SPECIAL PERMISSION FOR EXHIBITIONS IN CHURCHES, HALLS OR OTHER BUILDINGS.

SECTION 1. The chief of the district police may grant special permission for exhibitions of moving pictures in churches, halls or other buildings in the cities and towns of the commonwealth, which, in his opinion, are in safe condition for said exhibitions, and he may prescribe regulations for the proper conduct of the same.

SECTION 2. A fee of two dollars shall accompany each application for a special permission as provided for in the foregoing section.

SECTION 3. The provisions of this act shall not apply to the city of Boston.

SECTION 4. This act shall take effect upon its passage.

Since the enactment of this statute there have been 258 applications received, together with the fee of \$2 accompanying each application, the amount thus received being \$516, which sum has been paid to the Treasurer of the Commonwealth.

LEGISLATION ENACTED DURING THE YEAR.

During the year the following statutes have been enacted, and are enforced by the respective members of the District Police Force appointed for such duties: —

CHAPTER 182.

AN ACT RELATIVE TO THE LICENSING OF OPERATORS OF CINEMATOGRAPHS AND SIMILAR APPARATUS.

Be it enacted, etc., as follows:

SECTION 1. No license to operate a cinematograph or similar apparatus under the provisions of section four of chapter five hundred and sixty-six of the acts of the year nineteen hundred and eight shall hereafter be granted to a person under twenty-one years of age.

SECTION 2. This act shall take effect upon its passage. [*Approved March 1, 1912.*]

CHAPTER 191.

AN ACT TO DEFINE THE WORD "MINOR" AS APPLIED TO COMPULSORY ATTENDANCE AT DAY SCHOOLS.

Be it enacted, etc., as follows:

The third paragraph of section seventeen of chapter five hundred and fourteen of the acts of the year nineteen hundred and nine, as amended by chapter two hundred and forty-one of the acts of the year nineteen hundred and eleven, is hereby further amended by inserting after the word "at", in the fourth line, the words: — day or, — so as to read as follows: — "Child" or "Minor" shall mean a person under eighteen years of age, except that in regard to the compulsory attendance of illiterate minors at day or evening schools, the word "Minor" shall mean a person under the age of twenty-one years. [*Approved March 2, 1912.*]

CHAPTER 318.

AN ACT RELATIVE TO SAFEGUARDING MACHINERY AND ELEVATORS.

Be it enacted, etc., as follows:

Section ninety-four of chapter five hundred and fourteen of the acts of the year nineteen hundred and nine is hereby amended by striking out the said section and substituting the following: — *Section 94.* The belting, shafting, gearing, drums, elevators and all machinery having movable parts in all factories, mechanical estab-

lishments, workshops and mercantile establishments, if so placed as, in the opinion of an inspector of factories and public buildings, to be dangerous to employees therein while engaged in their ordinary duties, shall be, so far as is practicable, securely guarded. No machinery except steam engines in a factory, mechanical establishment, workshop, or mercantile establishment shall be cleaned while running if objection in writing is made by one of said inspectors. All factories, mechanical establishments, workshops and mercantile establishments shall be well lighted and well ventilated, and shall be kept clean, and this last requirement shall be enforced by the state inspectors of health. [*Approved March 25, 1912.*]

CHAPTER 320.

AN ACT RELATIVE TO THE USE OF ROOMS OR HALLS IN SCHOOL BUILDINGS FOR OTHER THAN SCHOOL PURPOSES.

Be it enacted, etc., as follows:

SECTION 1. Section one of chapter three hundred and sixty-seven of the acts of the year nineteen hundred and eleven is hereby amended by striking out the word "may", in the second line, and inserting in place thereof the word:—shall,—and by inserting after the word "of", in the third line, the words:—rooms or,—and by striking out the words "for which no admission fee is charged", in the fifth line, and by adding at the end thereof the words:— and that such use shall not be granted during the regular sessions of the school unless the means of egress have been approved for such purpose by an inspector of public buildings of the district police,—so as to read as follows:—*Section 1.* The school committee of any city or town which accepts the provisions of this act shall grant the temporary use of rooms or halls in school buildings upon such terms and conditions and for such public or educational purposes, as the said school committee may deem wise: *provided, however,* that such use shall not in any way interfere or be inconsistent with the use of the halls for school purposes, and that such use shall not be granted during the regular sessions of the school unless the means of egress have been approved for such purpose by an inspector of public buildings of the district police.

SECTION 2. Chapter one hundred and fifty-seven of the acts of the year nineteen hundred and twelve is hereby repealed.

SECTION 3. This act shall take effect upon its passage. [*Approved March 25, 1912.*]

CHAPTER 372.

AN ACT TO AUTHORIZE THE ARREST WITHOUT WARRANT OF PERSONS
FOUND COMMITTING MISDEMEANORS IN CERTAIN PLACES.

Be it enacted, etc., as follows:

SECTION 1. Any officer qualified to serve criminal process may, within his jurisdiction, arrest without a warrant any person found in the act of committing any misdemeanor in or upon any of the rivers, harbors, bays, or sounds within the commonwealth.

SECTION 2. This act shall take effect upon its passage. [*Approved April 3, 1912.*]

CHAPTER 409.

AN ACT RELATIVE TO REPORTING ACCIDENTS.

Be it enacted, etc., as follows:

Chapter five hundred and fourteen of the acts of the year nineteen hundred and nine is hereby amended by striking out section one hundred and forty-four and inserting in place thereof the following: — *Section 144.* All employers shall keep a correct record of any accident occurring to an employee while at work for the employer, whether such accident results in the death of the employee or in such bodily injury as shall prevent him from returning to work within four days thereafter. The said record shall be open to inspection by an inspector of factories of the district police. Within ninety-six hours after the time of the accident a written report thereof shall be furnished to the chief of the district police, upon forms to be furnished by him. No statements contained in any such report shall be admissible in any action arising out of the accident therein reported. The chief of the district police shall furnish the sender with a written or printed acknowledgment of the receipt of the report, shall keep a record of all accidents so reported to him, and shall include an abstract of the record in his annual report. An employer who fails to keep the record or to furnish the report to the chief of the district police required by this section shall be punished by a fine of not less than ten dollars nor more than twenty-five dollars for each offence. [*Approved April 6, 1912.*]

CHAPTER 452.

AN ACT RELATIVE TO THE EMPLOYMENT OF CHILDREN AND WOMEN IN
CERTAIN WORKSHOPS CONNECTED WITH MERCANTILE ESTABLISH-
MENTS.

Be it enacted, etc., as follows:

SECTION 1. Section one of chapter three hundred and thirteen of the acts of the year nineteen hundred and eleven is hereby amended by striking out the word "making", in the sixth line, so as to read

as follows:—*Section 1.* The provisions of section forty-seven of chapter five hundred and fourteen of the acts of the year nineteen hundred and nine, relative to the employment of children and women in mercantile establishments, shall also apply to children and women employed in a workshop for the altering or repairing of garments: *provided*, that the workshop is connected with a mercantile establishment where the said garments are sold at retail, and is owned and operated by the proprietor of such mercantile establishment; and *provided, also*, that such children and women shall not be employed more than fifty-six hours in any one week. The provisions of section forty-eight of the said chapter shall not apply to children and women employed as aforesaid.

SECTION 2. This act shall take effect upon its passage.

(The foregoing was laid before the Governor on the second day of April, 1912, and after five days it had "the force of a law", as prescribed by the Constitution, as it was not returned by him with his objections thereto within that time.)

CHAPTER 477.

AN ACT RELATIVE TO THE HOURS OF EMPLOYMENT OF WOMEN AND MINORS.

Be it enacted, etc., as follows:

Section forty-eight of chapter five hundred and fourteen of the acts of the year nineteen hundred and nine, as amended by chapter four hundred and eighty-four of the acts of the year nineteen hundred and eleven, is hereby further amended by striking out the words "except as hereinafter provided in this section, unless a different apportionment of the hours of labor is made for the sole purpose of making a shorter day's work for one day of the week", in the fourth, fifth, sixth and seventh lines, and by inserting after the word "week", in the eighth line, the words:—and if any child or woman shall be employed in more than one manufacturing or mechanical establishment, the total number of hours of such employment shall not exceed fifty-four hours in any one week,—and also by striking out the words "thirty-six and thirty-seven", in the twentieth line, and inserting in place thereof the words:—sixty-seven and sixty-eight,—so as to read as follows:—*Section 48.* No child under eighteen years of age and no woman shall be employed in laboring in a manufacturing or mechanical establishment more than ten hours in any one day; and in no case shall the hours of labor exceed fifty-four in a week, and if any child or woman shall be employed in more than one manufacturing or mechanical establishment, the total number of hours of such employment shall not exceed fifty-four hours in any one week, except that in any such establishment where the

employment is by seasons, the number of such hours in any week may exceed fifty-four, but not fifty-eight, provided that the total number of such hours in any year shall not exceed an average of fifty-four hours a week for the whole year, excluding Sundays and holidays. Every employer shall post in a conspicuous place in every room in which such persons are employed a printed notice stating the number of hours' work required of them on each day of the week, the hours of commencing and stopping work, and the hours when the time allowed for meals begins and ends or, in the case of establishments exempted from the provisions of sections sixty-seven and sixty-eight, the time, if any, allowed for meals. The printed forms of such notices shall be provided by the chief of the district police, after approval by the attorney-general. The employment of such person at any time other than as stated in said printed notice shall be deemed a violation of the provisions of this section unless it appears that such employment was to make up time lost on a previous day of the same week in consequence of the stopping of machinery upon which he was employed or dependent for employment; but no stopping of machinery for less than thirty consecutive minutes shall justify such overtime employment, nor shall such overtime employment be authorized until a written report of the day and hour of its occurrence and its duration is sent to the chief of the district police or to an inspector of factories and public buildings. [Approved April 12, 1912.]

CHAPTER 479.

AN ACT TO REQUIRE THE FURNISHING OF SEATS FOR ELEVATOR MEN.

Be it enacted, etc., as follows:

SECTION 1. All elevators used for the carriage of passengers shall be provided with a suitable seat for the operator in charge of the same.

SECTION 2. Failure to comply with the provisions of this act shall be punished by a fine not exceeding twenty dollars for each offence.

SECTION 3. This act shall be enforced by the inspectors of factories and public buildings of the district police. [Approved April 12, 1912.]

CHAPTER 482.

AN ACT RELATIVE TO THE AUTHORITY OF AN OFFICER TO ARREST FOR MISDEMEANORS.

Be it enacted, etc., as follows:

SECTION 1. Any officer may arrest and detain a person charged with a misdemeanor, without having a warrant for such arrest in his possession: *provided, however,* that the officer causing such arrest and

detention shall have actual knowledge that a warrant for the arrest and detention has in fact issued and is at the time when the arrest and detention are made in full force and effect.

SECTION 2. This act shall take effect upon its passage. [*Approved April 12, 1912.*]

CHAPTER 531.

AN ACT RELATIVE TO THE OPERATION AND INSPECTION OF STEAM BOILERS.

Be it enacted, etc., as follows:

SECTION 1. Section one of chapter four hundred and sixty-five of the acts of the year nineteen hundred and seven, as amended by section one of chapter five hundred and sixty-three of the acts of the year nineteen hundred and eight and by section one of chapter three hundred and ninety-three of the acts of the year nineteen hundred and nine, is hereby further amended by inserting after the word "year", in the eleventh line, the words:—and no person shall operate or cause to be operated any boiler not exempted by the provisions of this section until the boiler has been inspected as hereinafter provided, nor until the certificate of inspection as hereinafter provided has been issued and so placed as to be easily read in the engine or boiler room of the plant where the boiler is located, except that such certificate of inspection for a portable boiler shall be kept on the premises and shall be accessible at all times,—and by striking out the words "shall not be operated", in the same line, and inserting in place thereof the words:—no person shall operate or cause to be operated any boiler not exempted by the provisions of this section,—so as to read as follows:—*Section 1.* All steam boilers and their appurtenances, except boilers of railroad locomotives, motor road vehicles, boilers in private residences, boilers in public buildings and in apartment houses used solely for heating, and carrying pressures not exceeding fifteen pounds per square inch, and having less than four square feet of grate surface, boilers of not more than three horse power, boilers used for horticultural and agricultural purposes exclusively, and boilers under the jurisdiction of the United States, shall be thoroughly inspected internally and externally at intervals of not over one year, and no person shall operate or cause to be operated any boiler not exempted by the provisions of this section until the boiler has been inspected as hereinafter provided, nor until the certificate of inspection as hereinafter provided has been issued and so placed as to be easily read in the engine or boiler room of the plant where the boiler is located, except that such certificate of inspection for a portable boiler shall be kept on the premises and shall be accessible at all times; and no person shall operate or cause to be operated any boiler not exempted by the provisions of this section at pressures in excess of the safe working pressure stated in

the certificate of inspection hereinafter mentioned, which pressure is to be ascertained by rules established by the board of boiler rules, to be appointed as hereinafter provided; and shall be equipped with such appliances to insure safety of operation as shall be prescribed by said board. All such boilers installed after January first, nineteen hundred and eight, shall be so inspected when installed. A boiler in this commonwealth at the time of the passage of this act, which does not conform to the rules of construction formulated by the board of boiler rules may be installed after a thorough internal and external inspection and hydrostatic pressure test by a member of the boiler inspection department of the district police, or by an inspector holding a certificate of competency as an inspector of steam boilers, as provided by section six of chapter four hundred and sixty-five of the acts of the year nineteen hundred and seven, and employed by the company insuring the boiler. The pressure allowed on such boilers is to be ascertained by rules formulated by the board of boiler rules. No certificate of inspection shall be granted on any boiler installed after May first, nineteen hundred and eight, which does not conform to the rules formulated by the board of boiler rules.

SECTION 2. Section two of said chapter four hundred and sixty-five is hereby amended by striking out the word "annually", in the fourth line; by inserting after the word "report", in the fourth and fifth lines, the words:—in writing,—and by inserting after the word "chief", in the fifth line, the words:—inspector of the boiler inspection department,—and by adding at the end of said section the words:—before the work of installation of such boiler is completed, and annually thereafter: *provided, however*, that whoever owns, or uses or causes to be used, any such boiler, shall also report in writing immediately to the chief inspector of the boiler inspection department of the district police when the periodically guaranteed inspection of an insurance company authorized to insure boilers in this commonwealth ceases on such boiler for any cause, and annually thereafter so long as such boiler is not under the periodically guaranteed inspection of an insurance company authorized to insure boilers in this commonwealth,—so as to read as follows:—*Section 2.* Whoever owns, or uses or causes to be used, any such boiler, unless the same is under the periodically guaranteed inspection of insurance companies authorized to insure boilers in this commonwealth, shall report in writing to the chief inspector of the boiler inspection department of the district police the location of such boiler, before the work of installation of such boiler is completed, and annually thereafter: *provided, however*, that whoever owns, or uses or causes to be used, any such boiler, shall also report in writing immediately to the chief inspector of the boiler inspection department of the district police when the periodically guaranteed inspection of an insurance company authorized to insure boilers in this commonwealth ceases

on such boiler for any cause, and annually thereafter so long as such boiler is not under the periodically guaranteed inspection of an insurance company authorized to insure boilers in this commonwealth.

SECTION 3. Section five of said chapter four hundred and sixty-five is hereby amended by adding at the end thereof the words:— Every insurance company authorized to inspect and insure steam boilers in this commonwealth shall have in its employ at least one inspector who holds a certificate of competency as hereinafter provided, and who resides in this commonwealth,—so as to read as follows:— *Section 5.* No person shall act as an inspector of boilers which are under the periodically guaranteed inspection of companies that have complied with the laws of this commonwealth, unless he holds a certificate of competency as hereinafter provided. Every insurance company authorized to inspect and insure steam boilers in this commonwealth shall have in its employ at least one inspector who holds a certificate of competency as hereinafter provided, and who resides in this commonwealth.

SECTION 4. Said chapter four hundred and sixty-five is hereby further amended by striking out section thirteen and inserting in place thereof the following:— *Section 13.* The owner or user of a boiler herein required to be inspected shall prepare the boiler for inspection as directed by the inspector. The inspector shall give the owner or user at least fourteen days' notice to prepare a boiler for inspection, if requested by the owner or user to give such notice: *provided, however,* that the inspector shall not be required to give notice of external inspection under steam, and that such notice need not be given if the boiler is in process of installation, or if the boiler has not been inspected within one year and a certificate of inspection issued. If, in the judgment of an inspector of the boiler inspection department of the district police, any boiler or its appurtenances, which are herein required to be inspected, are in a defective or dangerous condition, he may immediately order the boiler discontinued from service, whether or not such boiler is under the periodically guaranteed inspection of an insurance company authorized to insure steam boilers in this commonwealth; and no person shall again operate such boiler, or cause it to be operated, until a certificate of inspection has been issued by an inspector of the boiler inspection department of the district police.

SECTION 5. Section fourteen of said chapter four hundred and sixty-five is hereby amended by inserting after the word "inspection", in the fourth and fifth lines, the words:— under steam, and two dollars for each cast-iron sectional boiler inspected,— and by striking out the word "boilers", in the seventh line, and inserting in place thereof the words:— the boiler inspection department,— so as to read as follows:— *Section 14.* The owner or user of a

boiler inspected by the boiler inspection department shall pay to the inspector five dollars for each boiler internally and externally inspected, and two dollars for each visit for external inspection under steam, and two dollars for each cast-iron sectional boiler inspected. The inspector shall give receipts for the same, and shall pay all sums so received to the chief inspector of the boiler inspection department, who shall pay the same to the treasurer of the commonwealth.

SECTION 6. Section fifteen of said chapter four hundred and sixty-five is hereby amended by inserting after the word “up”, in the third line, the words: — and the boiler and its appendages conform to the rules formulated by the board of boiler rules, — by inserting after the word “arranged”, in the eleventh line, the words: — or if the boiler and its appendages do not conform to the rules formulated by the board of boiler rules, — and by inserting after the word “operation”, in the thirteenth line, the words: — and the boiler and its appendages do conform to the rules formulated by the board of boiler rules, — so as to read as follows: — *Section 15.* If, upon inspection the inspector finds the boiler to be in safe working order, with the fittings necessary to safety, and properly set up, and the boiler and its appendages conform to the rules formulated by the board of boiler rules, he shall issue to the owner or user thereof a certificate of inspection stating the maximum pressure at which the boiler may be operated, as ascertained by the rules established by the board of boiler rules, and thereupon such owner or user may operate the boiler mentioned in the certificate. If the inspector finds that the boiler is not in safe working condition, or is not provided with fittings necessary to safety, or if the fittings are improperly arranged, or if the boiler and its appendages do not conform to the rules formulated by the board of boiler rules, he shall withhold his certificate until the boiler and its fittings are put in a condition to insure safety of operation, and the boiler and its appendages do conform to the rules formulated by the board of boiler rules, and the owner or user shall not operate the boiler, or cause it to be operated, until such certificate has been granted.

SECTION 7. Section seventeen of said chapter four hundred and sixty-five is hereby amended by inserting after the word “inspection”, in the third line, the words: — if the boiler and its appendages conform to the rules formulated by the board of boiler rules, and, — and also by inserting after the word “condition”, in the fourth line, the word: — otherwise, — so as to read as follows: — *Section 17.* Insurance companies engaged in the business of inspecting and insuring steam boilers shall, after each internal and external inspection, if the boiler and its appendages conform to the rules formulated by the board of boiler rules, and if they deem the boiler to be in safe working condition otherwise, issue a certificate of inspection stating the

maximum pressure at which the boiler may be operated. This maximum pressure shall be determined under the rules established by the board of boiler rules.

SECTION 8. All acts and parts of acts inconsistent herewith are hereby repealed.

SECTION 9. This act shall take effect upon its passage. [*Approved April 25, 1912.*]

CHAPTER 533.

AN ACT RELATIVE TO THE HOURS OF LABOR OF EMPLOYEES OF STREET RAILWAY COMPANIES.

Be it enacted, etc., as follows:

SECTION 1. Section ninety-five of Part III of chapter four hundred and sixty-three of the acts of the year nineteen hundred and six is hereby repealed and the work of all conductors, motormen and trainmen who are employed by or on behalf of a street railway or elevated railway company shall be arranged as provided in this act.

SECTION 2. A day's work for all conductors, motormen and trainmen shall be arranged by the employer upon the basis of nine hours' platform work: *provided, however*, that if in any case the schedule cannot be so arranged as to furnish a day's work of approximately nine hours and it is possible to provide one not exceeding nine and one half hours, the schedule may be so arranged, the platform time above the nine hours to be paid for as an addition to the nine hours' work. The day's work of men employed on regular cars shall be arranged to be performed within twelve consecutive hours. The work of any extra man who is regularly employed may, with his consent, be arranged in early and late halves or portions, but there shall be an interval of not less than eight hours between the close of the work of one day for such extra men and the beginning of the work of the next day, within which they shall not be required to perform any work except in cases of emergency. Nothing herein contained shall be held to prohibit spare men from performing, as substitutes in case of emergency, the work of employees unexpectedly absent.

SECTION 3. No officer or agent of any such company shall require from said employees more than nine hours' platform work for a day's labor except as is herein expressly provided. Threat of loss of employment or threat to obstruct or prevent the obtaining of employment by the employees, or threat to refrain from employing any employee in the future shall be considered coercion and "requiring" within the meaning of this section. On legal holidays and on Sundays and in case of unavoidable delay or other emergency, or at any time at the request of the employee, extra labor may be performed for extra compensation. A company which violates the provisions of this act shall forfeit for each offence not less than one hundred nor more than five hundred dollars.

SECTION 4. This act shall not affect any written contract existing at the date of its passage.

SECTION 5. This act shall take effect on the first day of January, nineteen hundred and thirteen. [*Approved April 25, 1912.*]

CHAPTER 545.

AN ACT FURTHER TO REGULATE ADVERTISEMENTS AND SOLICITATIONS FOR EMPLOYEES DURING STRIKES OR OTHER LABOR DISPUTES.

Be it enacted, etc., as follows:

SECTION 1. Chapter four hundred and forty-five of the acts of the year nineteen hundred and ten is hereby amended by inserting after section one the following new section, to be numbered section two:—*Section 2.* The provisions of this act shall cease to be operative when the state board of conciliation and arbitration shall determine that the business of the employer, in respect to which the strike or other labor trouble occurred, is being carried on in the normal and usual manner and to the normal and usual extent. Said board shall determine this question as soon as may be, upon the application of the employer.

SECTION 2. This act shall take effect upon its passage. [*Approved April 27, 1912.*]

CHAPTER 614.

AN ACT TO PROVIDE FOR THE APPOINTMENT OF TWO ADDITIONAL FIRE INSPECTORS FOR THE DETECTIVE DEPARTMENT OF THE DISTRICT POLICE.

Be it enacted, etc., as follows:

SECTION 1. The governor is hereby authorized to appoint two additional members of the district police, who shall be employed as fire inspectors in the detective department. Their terms of office, salaries, powers and duties shall be the same as those provided by law for the district police. The said appointments may be made without giving to veterans the preference required by sections twenty-one and twenty-two of chapter nineteen of the Revised Laws.

SECTION 2. This act shall take effect upon its passage. [*Approved May 21, 1912.*]

CHAPTER 726.

AN ACT TO ESTABLISH A STATE BOARD OF LABOR AND INDUSTRIES.

Be it enacted, etc., as follows:

SECTION 1. There is hereby established a state board of labor and industries to be composed of five persons who shall be appointed by the governor, with the advice and consent of the council. The terms of office of the members of the board shall be five years, except that when first appointed one of the members shall be appointed for four

years, one for three years, one for two years, and one for one year, the member at that time appointed for five years to be chairman. Thereafter a member shall be appointed each year, for a term of five years. One member of the board shall be an employer of labor, one a wage-earner, one a physician or a sanitary engineer, and at least one a woman. The governor, with the advice and consent of the council, shall have power to fill by appointment for the unexpired term any vacancy that may occur in the board.

SECTION 2. There shall be a commissioner of labor, who shall be appointed by the board. He shall serve for such term as the board may determine, and may be removed at any time by the board by vote of a majority of its members. Upon such removal a statement of reasons therefor shall be filed by the board with the governor. The commissioner of labor shall devote all his time to the affairs of the board, under its direction.

SECTION 3. The salary of the chairman of the board shall be fifteen hundred dollars a year, and the salaries of each of the other members of the board shall be one thousand dollars a year. The salary of the commissioner of labor shall be determined by the board, and shall not be less than five thousand nor more than seventy-five hundred dollars a year. The board may incur other necessary expenses for carrying out the provisions of this act, not exceeding the annual appropriation therefor. It shall be provided with offices in the state house or in some other suitable building in the city of Boston, and elsewhere in the commonwealth if approved by the governor and council.

SECTION 4. The board may investigate the conditions existing in any line of industry carried on by inhabitants of the commonwealth, and such investigations may be extended outside of the commonwealth to procure information for the promotion of industrial development or the improvement of industrial conditions. The board shall receive all complaints concerning conditions existing in any industry carried on by inhabitants of the commonwealth, or concerning alleged violations of any laws enforced under its direction, and shall thereupon make or direct all needful and appropriate investigations and prosecutions. It may employ experts or other necessary assistants to aid in the performance of any duty imposed upon it by law. It may make rules not inconsistent with existing law for carrying out the provisions of this act.

SECTION 5. All powers and duties with reference to the enforcement of laws relating to labor and the employment thereof, the inspection and licensing of buildings or parts of buildings used for industrial purposes, the inspection and licensing of the workers therein and of all other industrial employees within the commonwealth, the enforcement of laws relating to the employment of women and minors, and the institution of proceedings in prosecution of violations of any of the said laws, now conferred or imposed by law

upon the state board of health or state inspectors of health, or upon the chief of the district police, the inspectors of factories and public buildings of the district police, or the inspection department of the district police, or the deputy chief of the inspection department of the district police, with the exception of such duties and powers as are now imposed by law upon the chief inspector of boilers or the boiler inspectors of the district police, and with the further exception of such powers and duties as relate to the inspection of buildings under erection, alteration or repair, are hereby transferred to the state board of labor and industries. Said board may delegate to such commissioner, deputy commissioners or inspectors as are under its direction such of the above powers as it may deem necessary to carry out the provisions of this act.

Buildings used for industrial purposes under the meaning of this act shall include factories, workshops, bakeries, mechanical establishments, laundries, foundries, tenement-house workrooms, all other buildings or parts of buildings in which manufacturing is carried on, and mercantile establishments as defined in section seventeen of chapter five hundred and fourteen of the acts of the year nineteen hundred and nine.

SECTION 6. Nothing in this act shall be construed to prevent the state inspectors of health from entering buildings used for industrial purposes when required by their duty to protect the health of the community, especially as prescribed by section three of chapter five hundred and thirty-seven of the acts of the year nineteen hundred and seven, except that the duty therein prescribed of informing themselves concerning the health of minors in factories is hereby transferred to the state board of labor and industries. The said board shall promptly report to the state board of health all cases of disease in industrial establishments which may affect the health of the community.

SECTION 7. The board may appoint not more than two deputy commissioners of labor who shall be under the direction of and responsible to, the commissioner. One of the said deputies shall be especially qualified to supervise the enforcement of laws under the jurisdiction of the board which relate to the health of persons employed in buildings used for industrial purposes and shall be charged with that duty. Further division of powers and duties between the deputy commissioners may be made by the board, which shall also fix their salaries and terms of office with the approval of the governor and council. The board shall have power to remove a deputy commissioner from office at any time by vote of a majority of its members.

SECTION 8. The board shall have power to appoint and remove industrial health inspectors, industrial inspectors, assistant industrial inspectors, and necessary clerical assistants, subject to the laws of

the commonwealth relating to the appointment and removal of employees in the classified civil service. The total number of industrial health inspectors, industrial inspectors and assistant industrial inspectors shall not exceed twenty-four, of whom at least four shall be women. The state civil service commissioners shall prepare rules, subject to the approval of the governor and council, for including in the classified service all industrial health inspectors, industrial inspectors, assistant industrial inspectors, and clerical assistants. These rules shall provide that candidates for appointment shall pass an examination of a comprehensive and practical character based upon the particular requirements of the kind of work to be done: *provided*, that persons employed at the time when this act takes effect as inspectors of factories and public buildings in the inspection department of the district police and not retained in said department, as provided in section twelve of this act, shall be transferred without such special examination, and without regard to age, to serve as industrial inspectors. Such transfer shall not affect any rights of retirement with pension that shall have accrued at the date when it is made, or would thereafter accrue to an inspector so transferred, but all such rights shall be retained by any inspector as if he had remained a district police officer. Industrial health inspectors shall be persons admitted to practise medicine in this commonwealth.

Inspectors and assistant inspectors shall be not over forty-five years of age on the date of their first appointment, but this age limit shall not apply to any reappointment.

Industrial health inspectors, industrial inspectors and assistant industrial inspectors shall devote their entire time to the affairs of the board.

Each inspector shall, before entering upon his duties, be sworn to the faithful performance thereof.

The salaries of the industrial health inspectors, industrial inspectors and assistant industrial inspectors shall be determined by the board with the approval of the governor and council and shall be graded and of sufficient amount to secure competent men and women for the service; *provided, however*, that the salaries of the industrial inspectors shall be not less than fifteen hundred dollars a year, and *provided, further*, that the amount expended by the board in any year for such salaries shall not exceed the annual appropriation therefor. All salaries provided for under this act shall be paid out of the treasury of the commonwealth.

SECTION 9. The commissioner of labor may divide the commonwealth into inspection districts, and may assign the number of industrial health inspectors, industrial inspectors and assistant industrial inspectors thereto which he deems necessary, all with the consent of the board. Any order made by a deputy commissioner or inspector may be amended, suspended or revoked by the commissioner of labor

or by the board, and any order made by the commissioner may be amended, suspended or revoked by the board.

SECTION 10. Any inspector under the state board of labor and industries who directly or indirectly receives a reward, gift or gratuity on account of his official services, shall be punished by a fine of not more than one hundred dollars or by imprisonment for not more than three months; and shall also be discharged from office.

SECTION 11. For the enforcement of any law within the jurisdiction of the state board of labor and industries, industrial health inspectors, industrial inspectors and assistant industrial inspectors shall possess the police powers granted by existing law to members of the inspection department of the district police.

SECTION 12. The office of inspector of factories and public buildings in the inspection department of the district police is hereby abolished. The inspectors of factories and public buildings who are, at the time of the passage of this act, serving as building inspectors, so-called, shall remain members of the district police force with the title of inspectors of buildings. The total number of such inspectors shall be eighteen, and, upon the taking effect of this act, the governor shall designate from among the inspectors of factories and public buildings who are at the time of its passage serving as factory inspectors, so-called, a sufficient number of such inspectors to remain members of the district police and to serve as inspectors of buildings to complete this number. The remaining inspectors of factories and public buildings shall, upon the taking effect of this act, be transferred to service under the state board of labor and industries as provided in section eight of this act. Inspectors of buildings shall have the powers and be charged with the duties of the present inspectors of factories and public buildings of the district police, except as otherwise provided in this act.

SECTION 13. Copies of all reports concerning injuries received by employees, which employers are required to file with the industrial accident board under the provisions of section eighteen of Part III of chapter seven hundred and fifty-one of the acts of the year nineteen hundred and eleven, shall be filed with the state board of labor and industries. Any employer who refuses or neglects to make the report required by this section shall be punished by a fine of not more than fifty dollars for each offence.

SECTION 14. The board shall annually, on or before the first Wednesday in January, submit to the general court a report containing a statement of the character and results of the work performed by it or under its direction during the preceding year and of the expenditures for the year, together with an estimate of the sum required for the ensuing year and recommendations for such additional legislation as the board shall deem necessary.

SECTION 15. All acts and parts of acts inconsistent herewith are

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hereby repealed; but nothing in this act shall be construed as affecting the duties of the bureau of statistics as defined by chapter three hundred and seventy-one of the acts of the year nineteen hundred and nine.

SECTION 16. This act shall take effect on the first day of June, nineteen hundred and thirteen, except that so much of the act as provides for the appointment of the members of the board and of the commissioner, deputy commissioners and necessary clerical assistants shall take effect on the first day of March, nineteen hundred and thirteen. [*Approved June 10, 1912.*]

CHAPTER 108.

RESOLVE TO PROVIDE FOR THE EMPLOYMENT OF EXPERT ASSISTANCE
TO AID IN THE ENFORCEMENT OF THE STATUTES RELATIVE TO EXPLOSIVES AND INFLAMMABLE FLUIDS AND COMPOUNDS.

Resolved, That there may be expended from the treasury of the commonwealth, by the chief of the district police, a sum not exceeding twenty-five hundred dollars for the employment of expert assistance to aid in the enforcement of the provisions of the statutes relative to explosives and inflammable fluids and compounds. [*Approved May 17, 1912.*]

DETECTIVE DEPARTMENT.

GEORGE C. NEAL, *Deputy Chief.*

DETECTIVE AND FIRE INSPECTION DEPARTMENT.

GEORGE C. NEAL, *Deputy Chief.*

The members of this department are subdivided into detectives and fire inspectors. The duties pertaining to these officers have been performed with diligence and skill, it being, of course, impossible to fully report the work accomplished by them; but a summary, together with the individual reports of the officers, is hereinafter given.

A considerable portion of the work to which the detectives are assigned consists of the investigation of crime, which, from its very nature, requires the expenditure of the greater portion of the time of the officers detailed to such duty. In connection with such investigations it is necessary to locate witnesses and secure their statements, in order to do which they must be interviewed wherever they can be found. They act, in most cases, under the direct instructions of the district attorneys, their duties being to collect all possible information in relation to criminal cases. Much of their work being of a confidential character, the particulars are of necessity known only to the district attorneys and themselves.

The duty of investigating all fires occurring in the city of Boston, and of all incendiary and unknown fires occurring in the various cities and towns outside of Boston, is placed upon the fire inspectors of this department; but in consequence of the large amount of such work it has been necessary, at times, to detail some of the detectives to assist in this work, as will be noted by reference to the respective reports of the officers which follow. During the year 1911 there were 6,754 fires reported throughout the State, the total loss in consequence of the same being \$8,891,412.96. Of the total number, 110 were of incendiary origin. During

the same period there were 2,008 fires in the city of Boston, the total value involved being \$29,811,564. From these figures it will readily be seen that a large amount of work devolves upon the fire inspectors of this department.

By the provisions of chapter 108 of the Resolves of 1912, the Chief of this force was authorized to expend a sum not exceeding \$2,500 for the employment of expert assistance to aid in the enforcement of the statutes relative to explosives and inflammable fluids and compounds. In accordance with these provisions, I, upon the recommendation of Deputy Chief Neal of this department, appointed Walter L. Wedger to the position of expert assistant, to perform the duties incumbent upon the position, such appointment dating from May 20, 1912. A report of the various inspections, investigations, analyses, etc., made by him will be found in a later portion of this report.

The following is a summary of the work of this department and the various reports of its members: —

SUMMARY OF WORK PERFORMED BY THE DETECTIVE AND FIRE INSPECTION DEPARTMENT OF THE DISTRICT POLICE DURING THE YEAR ENDING OCT. 31, 1912.

Total number of arrests, ...	401
Total number of prosecutions, ...	518
Total number of fires investigated, ...	4,245
Total number of cases investigated (other than fires), ...	1,536
Total amount of fines and costs imposed, ...	\$7,453 50
Total value of stolen property recovered, ...	\$1,925 22
Total amount of restitution made in criminal cases, ...	\$28,140 15
Total number of days' strike duty performed, ...	583
Total number of days on muffler law enforcement, ...	144

REPORTS OF OFFICERS.

CAPT. WILLIAM H. PROCTOR, IN COMMAND OF STEAMER "LEXINGTON."

I have been in command of the steamer Lexington during the past year. The steamer has been in active service from April 30 to October 15. Menhaden have been very plentiful during the entire season, and while menhaden steamers hailing from other States have been sighted nearly every day, there has not been any violation of the seining law to my knowledge.

I was detailed and did duty at Lawrence during the strike from

January 14 to March 15, and did strike duty at South Barre from March 15 to March 21, 1912.

Under chapter 245 of the Acts of 1909 I have attempted to enforce the muffler law, within the territory where seining is prohibited, with varied success.

I respectfully suggest that the law be changed by striking out all the words after the word "muffie," in the fifth line, and inserting in place thereof the following words, viz., "the noise of the explosion so that the said noise cannot be heard for a greater distance than one quarter of a mile."

Number of arrests, ...	50
Number of arrests in which I assisted, . . .	32
Number of prosecutions, ...	78
Number of cases investigated (other than fires),	85
Amount of fines and costs imposed, ...	\$1,160

Some of the cases investigated are the following:—

Domenico Beninati; crime, murder. Case pending.

Joseph Caruso; crime, murder. Case pending.

Joseph J. Ettor; crime, accessory to murder. Case pending.

Arturo Giovannitti; crime, accessory to murder. Case pending.

William D. Haywood; crime, conspiracy. Case pending.

William Yates; crime, conspiracy. Case pending.

James P. Thompson; crime, conspiracy. Case pending.

Thomas Halliday; crime, conspiracy. Case pending.

Gildo Mazzarella; crime, conspiracy. Case pending.

William E. Trautman; crime, conspiracy. Case pending.

Edmond Rossoni; crime, conspiracy. Case pending.

Ettore Giannini; crime, conspiracy. Case pending.

John J. Breen; crime, conspiracy. Found guilty, and was fined \$500.

Salvatore Bruno; crime, assault. Found guilty, and was sentenced to five to seven years in the State Prison.

James Massie; crime, assault. Found guilty, and was sentenced to eight months in the House of Correction.

Nofio Covignoli; crime, assault. Found guilty, and was sentenced to four months in the House of Correction.

Michele Rosselli; crime, assault. Found guilty, and was sentenced to four months in the House of Correction.

Raffele DiRoberto; crime, assault. Found guilty, and was sentenced to four months in the House of Correction.

OFFICER ERNEST S. BRADFORD. — BARNSTABLE COUNTY.

Number of arrests, ...	28
Number of arrests in which I assisted, ...	29
Number of arrests caused to be made, ...	41
Number of prosecutions, ...	79
Number of cases investigated (other than fires), ...	156
Number of fires investigated, ...	10
Amount of fines and costs imposed, ...	\$725 00
Value of stolen property recovered, ...	\$550 10

Among the more important cases investigated were the following:—

George W. Haskell; crime, breaking and entering and larceny. Found guilty, and sentenced to two years in the House of Correction.

Paul Eldredge; crime, larceny. Found guilty, and sentenced to six months in the House of Correction.

George T. Sisson; crime, forgery and uttering. Found guilty, and sentenced to the House of Correction.

Arthur L. Hamblin; crime, larceny. Found guilty, and sentenced to three months in the House of Correction.

Leo Childs; crime, assault to rape. Found guilty, and sentenced to the House of Correction.

Lawrence Corcoran; crime, larceny. Found guilty, and sentenced to three months in the House of Correction.

I also performed thirty-six days' strike duty at Lawrence and four days at South Barre. Was detailed for special duty to assist Capt. William H. Proctor in enforcing the muffler law in Buzzards Bay, and Nantucket and Vineyard sounds in July and August.

OFFICER ALFRED B. HODGES.¹ — BRISTOL COUNTY.

Number of arrests, ...	3
Number of arrests in which I assisted, ...	2
Number of arrests caused to be made, ...	1
Number of prosecutions, ...	5
Number of cases investigated (other than fires), ...	37

Among the more important cases investigated were the following:—

Lester W. Chase; crime, murder. Indicted for manslaughter, and placed on probation on account of having weak mind.

Charles Rosenfield; crime, breaking and entering and larceny.

¹ Retired March 31, 1912.

Found guilty, and sentenced to nine months in the House of Correction.

Albert B. Brown; crime, breaking and entering and larceny. Found guilty, and sentenced to three years in the House of Correction.

OFFICER JAMES J. MACKSEY.¹—BRISTOL COUNTY.

Number of arrests, ...	4
Number of arrests in which I assisted, ...	6
Number of arrests caused to be made, ...	2
Number of prosecutions, ...	4
Number of cases investigated (other than fires), ...	243
Number of fires investigated, ...	1
Amount of fines and costs imposed, ...	\$90

I also performed twenty days' strike duty at Lawrence, and thirteen days at Clinton.

OFFICER THOMAS A. DEXTER.—DUKES AND NANTUCKET COUNTIES.

Number of arrests, ...	12
Number of arrests in which I assisted, ...	12
Number of arrests caused to be made, ...	3
Number of prosecutions, ...	25
Number of cases investigated (other than fires), ...	94
Number of fires investigated, ...	6
Amount of fines and costs imposed, ...	\$1,182 50
Value of stolen property recovered, ...	\$262 50

Among the more important cases investigated were the following:—

Charles H. Watson; crime, larceny. Found guilty, and fined \$24.50. Also made restitution of property stolen, \$165.

Frank Lynch; crime, disturbing the peace and drunk. Found guilty, and sentenced to six months in the House of Correction.

Frank Rose; crime, assault with dangerous weapon. Found guilty, and fined \$25.

Charles W. Peters; crime, larceny. Found guilty, and discharged on making full restitution of property stolen, \$25.

Alphonso Senna; crime, assault with dangerous weapon. Found guilty, and sentenced to thirty days in county jail.

Joseph Dias; crime, assault with dangerous weapon. Found guilty, and sentenced to two months in the House of Correction.

James Machett; crime, illegal sale of liquor. Found guilty, and fined \$50.

¹ Appointed April 1, 1912.

George F. Seabin; crime, maintaining collecting agency, not having filed bond. Found guilty, and fined \$25. Appealed. Case pending.

Charles Higbee; crime, larceny at Tisbury. Found guilty, and fined \$50.

Charles Higbee; crime, larceny at Nantucket. Found guilty, and fined \$120.

Edward B. Kitfield; crime, larceny at Tisbury. Found guilty, and fined \$50.

Edward B. Kitfield; crime, larceny at Nantucket. Found guilty, and fined \$120.

Joseph Rowe; crime, larceny from building. Found guilty, and sentenced to the Industrial School for Boys. Also made restitution of money stolen, \$40.

William E. Salvadore; crime, larceny. Discharged on payment of costs, \$8, person injured acknowledging satisfaction.

R. Allen Norton; crime, larceny. Turned defendant over to Worcester officials for trial.

Dana Baxter; crime, adultery. Fined \$500.

Joseph Perry; crime, larceny from building. Found guilty, and sentenced to the House of Correction.

Manuel Fernandes; crime, larceny from building. Found guilty, and sentenced to the House of Correction.

George S. Daly; crime, illegal sale of liquor. Found guilty, and fined \$100.

I have also performed four days' strike duty at South Barre.

OFFICER ARTHUR G. WELLS. — ESSEX COUNTY.

Number of arrests, ...	6
Number of arrests in which I assisted, ...	2
Number of arrests caused to be made, ...	1
Number of prosecutions, ...	3
Number of cases investigated (other than fires), ...	72
Number of fires investigated, ...	106
Amount of fines and costs imposed, ...	\$1,100
Value of stolen property recovered, ...	\$300

Among the more important cases investigated were the following: —

William S. Cooper; crime, obtaining money by false pretenses. Case pending in Superior Court.

Fred Franco; crime, assault to murder. Case pending in Superior Court.

In the case of Philip Broomfield whom I arrested on a capias Sept. 20, 1910, for the larceny of a large amount of copper from the

General Electric Company at Lynn, he has during the past year made restitution to the said company to the amount of \$27,500, and was fined in court \$1,000, which he paid.

I also performed seven days' strike duty at South Barre, and ten days at Lawrence.

OFFICER JAMES MCKAY.¹—FRANKLIN AND HAMPSHIRE COUNTIES.

Number of arrests, ...	5
Number of arrests in which I assisted, . . .	10
Number of prosecutions, ...	15
Number of cases investigated (other than fires),	79
Number of fires investigated, ...	4
Amount of fines and costs imposed, ...	\$112 00
Value of stolen property recovered, ...	\$112 62

I also performed five days' strike duty at South Barre.

OFFICER JOSEPH V. DALY.²—FRANKLIN AND HAMPSHIRE COUNTIES.

Number of arrests, ...	12
Number of arrests in which I assisted, . . .	9
Number of prosecutions, ...	21
Number of cases investigated (other than fires),	52
Number of fires investigated, ...	53
Amount of fines and costs imposed, ...	\$30

I was detailed to assist Officer Grady in the enforcement of the muffler law, and was so engaged fifteen days; I also performed three days' strike duty at Lawrence.

OFFICER THOMAS E. BLIGH.—BERKSHIRE AND HAMPDEN COUNTIES.

Number of arrests, ...	21
Number of arrests in which I assisted, . . .	15
Number of arrests caused to be made, . . .	11
Number of prosecutions, ...	21
Number of cases investigated (other than fires),	79
Number of fires investigated, ...	21
Amount of fines and costs imposed, ...	\$650
Number of days on special duty, ...	18

¹ Retired Aug. 31, 1912.

² Assigned for duty in Waiting Room of the Executive Department until July 11, 1912, when he was transferred to special duty; was later detailed to Franklin-Hampshire district on retirement of Officer McKay.

Among the more important cases investigated were the following:—

Stefan Bourasky and Antonio Koliek; crime, murder. Both found guilty in the first degree. Koliek died in jail while waiting for sentence. Bourasky is in jail waiting for sentence.

Lewis Keyes; crime, murder. Pleaded guilty to murder in second degree, and sentenced to life imprisonment in State Prison.

John B. Arena and Antonio Gizzi; crime, murder. Arrested in Italy. Prepared affidavits and forwarded them to Italy for use against defendants.

Charles Bradley and Marvin Ellsworth; crime, breaking and entering and larceny. Found guilty. Bradley sentenced to three to five years in State Prison. Ellsworth placed on probation.

David B. Wilson; crime, breaking and entering and larceny. Found guilty, and sentenced to six months in the House of Correction.

Albert Hick; crime, robbery. Case pending.

William Archie, Arthur Markert and James Morrison; crime, breaking and entering and larceny. Cases pending.

William P. Walcott; crime, manslaughter. Case pending.

I also performed four days' strike duty at South Barre.

OFFICER FREDERICK F. FLYNN.—ESSEX AND MIDDLESEX COUNTIES.

Number of arrests, ...	16
Number of arrests in which I assisted, ...	14
Number of arrests caused to be made, ...	4
Number of prosecutions, ...	13
Number of cases investigated (other than fires), ...	46
Number of fires investigated, ...	74
Number of gasoline storage locations inspected, ...	145
Amount of fines and costs imposed, ...	\$500
Value of stolen property recovered, ...	\$400

Among the more important cases investigated were the following:—

Arthur Oliver; crime, arson. Found guilty, and was sentenced to five to seven years in State Prison.

Samuel A. Peary; crime, burning goods with intent to injure the insurer. Indicted. Found not guilty.

Everett Hornocker; crime, desertion. Found guilty, and placed on probation.

James H. Mahoney; crime, burning a building. Found guilty, and placed on probation.

Vincenzo Lomastro; crime, rioting and carrying loaded revolver. Found guilty, and sentenced to two years in the House of Correction.

Guisippi Izzo; crime, disturbance of the peace while armed with dangerous weapon. Found guilty, and sentenced to three months in the House of Correction.

William A. McKenna; crime, perjury. Indicted. Case pending.

With officers Bligh and McKay assisted the Springfield police in the prosecution of Bertram G. Spencer for the murder of Miss Martha B. Blackstone. Found guilty, and sentenced to death. Executed Sept. 17, 1912.

With Capt. William H. Proctor and other members of this department assisted the Lawrence police in the mill strikes and riots at Lawrence in which the following were indicted:—

Salvatore Scuito; crime, murder. Indicted. Case pending.

Joseph Caruso; crime, murder. Indicted. Case pending.

Joseph J. Ettor; crime, accessory to murder. Indicted. Case pending.

Arturo Giovannitti; crime, accessory to murder. Indicted. Case pending.

William D. Haywood; crime, conspiracy. Indicted. Case pending.

William E. Trautman; crime, conspiracy. Indicted. Case pending.

Gildo Mazzarella; crime, conspiracy. Indicted. Case pending.

Ettore Giannini; crime, conspiracy. Indicted. Case pending.

Edmond Rossoni; crime, conspiracy. Indicted. Case pending.

James P. Thompson; crime, conspiracy. Indicted. Case pending.

William Yates; crime, conspiracy. Indicted. Case pending.

Thomas Holliday; crime, conspiracy. Indicted. Case pending.

John J. Breen; crime, conspiracy. Indicted. Found guilty, and fined \$500.

Was on strike duty at Lawrence fifty-eight days, at Clinton five days and at South Barre two days.

OFFICER SILAS P. SMITH. — MIDDLESEX COUNTY.

Number of arrests, ...	17
Number of arrests caused to be made, ...	1
Number of prosecutions, ...	18
Number of cases investigated (other than fires), ...	73
Number of fires investigated, ...	1
Amount of fines and costs imposed, ...	\$425

Among the more important cases investigated were the following:—

James H. Horsfall; crime, manslaughter and reckless driving.

Found guilty, and was sentenced to six months in the House of Correction and fined \$200.

Domenico Beninati; crime, murder. Case pending.

Luigi Melinazzo; crime, murder. Case pending.

Luigi Ranelli; crime, assault to murder. Case pending.

Paul F. Taylor; crime, manslaughter and reckless driving. Found guilty of reckless driving, and was fined \$200.

I also performed seven days' strike duty at Lawrence.

OFFICER JOHN H. SCOTT. — NORFOLK AND PLYMOUTH COUNTIES.

Number of arrests, ...	33
Number of prosecutions, ...	33
Number of cases investigated (other than fires),	63
Number of fires investigated, ...	5
Amount of fines and costs imposed, ...	\$875
Value of stolen property recovered, ...	\$300

Among the more important cases investigated were the following:—

Murder of Bridget Pritchard at Hyde Park, Dec. 30, 1911.

Domenico Romeo; crime, murder of Vincenzo Di Stefano at Norwood, Aug. 11, 1912.

David D. Farnsworth; crime, murder of Thomas Hagan at Bridgewater, Aug. 16, 1912.

I also performed ten days' strike duty at Lawrence and five days at South Barre.

OFFICER ARTHUR E. KEATING. — SUFFOLK COUNTY.

Number of arrests, ...	18
Number of arrests in which I assisted, ...	3
Number of arrests caused to be made, ...	1
Number of prosecutions, ...	15
Number of cases investigated (other than fires),	150
Number of fires investigated, ...	8
Number of inspections for gasoline and oil storage, ...	26
Amount of fines and costs imposed, ...	\$353 00
Restitution made in four cases amounting to, ...	\$410 15

Included among the 150 cases investigated were 8 militia cases, 41 insurance cases, 16 inheritance tax cases and 6 corporation cases. Ten executive warrants for fugitives from justice have been given to me for service during the year; 8 of these have been served, 3 of the

fugitives being returned to Illinois, and 1 each to Colorado, Arkansas, Vermont, Ohio and Pennsylvania; in the case of the other 2, 1 defaulted his bail while awaiting requisition papers and has not since been apprehended, and the other while out on bail, awaiting requisition papers, returned to the place where he was wanted and gave himself up.

I have assisted in the preparations for the trial of the I. W. W. leaders at Salem, and have made some prosecutions during the year for violations of the fraternal insurance laws which have been very important, one case of which went to the Supreme Court on exceptions.

I also performed three days' strike duty at Lawrence and four days at South Barre.

OFFICER ROBERT E. MOLT. — WORCESTER COUNTY.

Number of arrests, ...	21
Number of arrests in which I assisted, ...	2
Number of arrests caused to be made, ...	16
Number of prosecutions, ...	39
Number of cases investigated (other than fires), ...	47
Number of fires investigated, ...	89
Amount of fines and costs imposed, ...	\$380

Among the more important cases investigated were the following:—

Edward Goddard; crime, assault with intent to rape. Found guilty, and sentenced to Shirley Industrial School.

Wilfred E. Girourd; crime, burning. Found guilty, and sentenced to Lyman School. Sentence suspended.

Vincenzo Sirignano; crime, breaking and entering and larceny. Held in \$500 bail. Defaulted.

Carminc Sirignano; crime, receiving stolen property. Found guilty, and sentenced to six months in the House of Correction. Appealed and held in \$300 bail. Defaulted.

Tony Novia; crime, receiving stolen property. Found guilty, and case placed on file.

Cornelius Ryan; crime, burning. Found guilty, and placed on probation.

Eli Goulet; crime, burning. Found guilty, and placed on probation.

Geo. E. Maxfield; crime, rape. Found guilty, and sentenced to three years in the House of Correction.

William Lacross; crime, breaking and entering and larceny. Found guilty, and sentenced to eighteen months in the House of Correction.

Albert Johnson; crime, breaking and entering and larceny. Found guilty, and sentenced to eighteen months in the House of Correction.

Margaret Burns; crime, larceny. Found guilty, and committed to the Insane Hospital and then deported.

John F. Odea; crime, burning. Adjudged insane and committed to the Insane Hospital.

Thomas Rolfe; crime, abuse of dumb animals. Found guilty, and sentenced to one year in the House of Correction.

Joseph E. Labreck; crime, burning. Found guilty, and sentenced to two and one-half years in the House of Correction.

James Rumboldt; crime, attempted larceny. Found guilty, and sentenced to Massachusetts Reformatory.

Peter Chabot; crime, incest. Found guilty, and case filed.

Leboir Trotier; crime, adultery. Adjudged insane and committed to the Insane Hospital.

William Rodziewicz; crime, burning. Found guilty, and sentenced to three years in the House of Correction. Case sent to Supreme Court on exceptions. New trial ordered.

Adolph Glacer; crime, burning. Found not guilty.

William A. Sawyer; crime, burning. Found guilty, and sentenced to Lyman School.

Antonio Kolick; crime, murder. Found guilty in first degree. Died in jail while waiting for sentence. Assisted Officer Bligh on this case.

Charles Leach; crime, burning. Found guilty, and placed on probation.

I also performed four days' strike duty at Lawrence, four days at South Barre and two days at Clinton.

OFFICER MICHAEL J. BARRETT. — ASSIGNED TO ENFORCING THE PROVISIONS OF LAW RELATING TO THE ARREST AND CARE OF TRAMPS.

Number of arrests, ...	70
Number of arrests in which I assisted, ...	11
Number of prosecutions, ...	65
Number of cases investigated (other than fires), ...	25
Number of fires investigated, ...	28
Amount of fines and costs imposed, ...	\$102

Among the more important cases investigated were the following: —

Luigi Melinazzo; crime, murder. Case pending.

Luigi Ranelli; crime, assault to murder. Case pending.

During the past year I have arrested 58 persons for violation of the tramp laws; 18 were fined \$5 each, 2 were fined \$6 each, 12 re-

ceived sentences varying from twenty-five to forty-five days in jail, 3 were sentenced to Concord Reformatory, 5 to Bridgewater and 18 had their cases filed.

I also performed sixty days' strike duty at Lawrence, seven days at South Barre and seven days at Clinton.

OFFICER JAMES J. GRADY. — ASSIGNED FOR THE INSPECTION OF FIRES
IN THE SUFFOLK DISTRICT.

Number of arrests, ...	15
Number of arrests in which I assisted, ...	14
Number of prosecutions, ...	12
Number of fires investigated, ...	527
Number of cases investigated (other than fires), ...	8

I was detailed to enforce the motor boat muffler law, and was so engaged for a period of ninety-two days, having the assistance at different times of Officers Daly and Nelligan. I also performed five days' strike duty at South Barre, one day at Lawrence, and was on duty in the reception room of the executive department for seven days during the Lawrence strike.

OFFICER FRANK P. HARDIMAN. — ASSIGNED FOR THE INSPECTION OF
FIRES IN THE SUFFOLK DISTRICT.

Number of arrests, ...	4
Number of arrests in which I assisted, ...	10
Number of arrests caused to be made, ...	3
Number of cases investigated (other than fires), ...	30
Number of fires investigated, ...	767

I also performed seven days' strike duty at Lawrence, seven days at South Barre, and was on duty thirty-eight days in the reception room of the executive department during the Lawrence strike.

OFFICER CHARLES F. RICE. — CHIEF FIRE INSPECTOR.

Number of arrests caused to be made, ...	14
Number of prosecutions, ...	14
Number of fires investigated, ...	330
Number of fire inquests held, ...	118

OFFICER JAMES ANDERSON. — FIRE INSPECTOR FOR THE HAMPDEN-
BERKSHIRE DISTRICT.

Number of arrests, ...	6
Number of arrests in which I assisted, ...	4
Number of arrests caused to be made, ...	10
Number of prosecutions, ...	6
Number of cases investigated (other than fires), ...	8
Number of fires investigated, ...	232

Among the more important cases investigated was the following: —

Bernard C. Murray; crime, arson. Case pending.

OFFICER HENRY H. COLLAMORE. — FIRE INSPECTOR FOR THE SOUTH-
EASTERN DISTRICT.

Number of arrests, ...	6
Number of arrests in which I assisted, ...	3
Number of prosecutions, ...	6
Number of cases investigated (other than fires), ...	17
Number of fires investigated, ...	230

Among the more important cases investigated were the following: —

Thomas J. Dwyer; crime, arson and attempt to defraud insurance company. Found guilty, and sentenced to not less than three years in State Prison.

Tony Montello; crime, attempt to defraud insurance company. Found guilty, and sentenced to fifteen months in the House of Correction.

I also performed three days' strike duty at Lawrence.

OFFICER GEORGE F. CRITTENDEN. — FIRE INSPECTOR FOR THE
FRANKLIN-HAMPSHIRE DISTRICT.

Number of arrests, ...	6
Number of arrests in which I assisted, ...	3
Number of arrests caused to be made, ...	3
Number of prosecutions, ...	6
Number of cases investigated (other than fires), ...	14
Number of fires investigated, ...	149
Amount of fines and costs imposed, ...	\$112

I also performed two days' strike duty at South Barre.

OFFICER ARTHUR S. KIMBALL,¹ — FIRE INSPECTOR FOR THE NORFOLK-PLYMOUTH DISTRICT.

Number of arrests, ...	1
Number of arrests in which I assisted, ...	1
Number of arrests caused to be made, ...	1
Number of prosecutions, ...	1
Number of cases investigated (other than fires), ...	18
Number of fires investigated, ...	142

I also performed three days' strike duty at Lawrence.

OFFICER THOMAS F. EUSTACE. — FIRE INSPECTOR ASSIGNED TO THE SUFFOLK DISTRICT.

Number of arrests, ...	7
Number of arrests in which I assisted, ...	10
Number of prosecutions, ...	5
Number of cases investigated (other than fires), ...	9
Number of fires investigated, ...	786

I also performed thirty-four days' strike duty at Lawrence and five days at South Barre.

OFFICER THOMAS A. THOMPSON. — FIRE INSPECTOR FOR THE SUFFOLK-MIDDLESEX DISTRICT.

Number of arrests, ...	18
Number of arrests in which I assisted, ...	17
Number of prosecutions, ...	16
Number of cases investigated (other than fires), ...	23
Number of fires investigated, ...	380
Amount of fines and costs imposed, ...	\$50

I also performed twenty-one days' strike duty at Lawrence, seven days at South Barre and eleven days at Clinton.

OFFICER EDWARD J. SHERLOCK. — UNASSIGNED.

Number of arrests, ...	21
Number of arrests in which I assisted, ...	55
Number of arrests caused to be made, ...	1
Number of prosecutions, ...	15
Number of cases investigated (other than fires), ...	42
Number of fires investigated, ...	184

¹ Appointed June 21, 1912.

Among the more important cases investigated were the following:—

John J. Breen; crime, conspiracy. Found guilty, and fined \$500.

Murder of Peter Savaria, Annie Savaria, Annie Tanguay and Shaefe Maroon at Lawrence, Feb. 2, 1912.

Joseph J. Ettor and Arturo Giovannitti; crime, accessory before the fact to murder. Case pending.

Joseph E. La Breck; crime, burning a building. Found guilty, and sentenced to two and one-half years in the House of Correction.

I also performed fifty-six days' strike duty at Lawrence, seven days at South Barre and twelve days at Clinton.

OFFICER MAURICE P. NELLIGAN.¹—UNASSIGNED.

Number of arrests, ...	1
Number of arrests in which I assisted, ...	1
Number of arrests caused to be made, ...	1
Number of prosecutions, ...	3
Number of fires investigated, ...	91
Number of cases investigated (other than fires), ...	9
Amount of fines and costs imposed, ...	\$15

I was detailed to assist Officer Grady in the enforcement of the muffler law, and was so employed during thirty-seven days. I also was on strike duty at Lawrence one day.

OFFICER WILLIAM F. MURRAY.²—UNASSIGNED.

Number of cases investigated (other than fires), ...	7
Number of fires investigated, ...	21

Among the more important cases investigated was the following:—

Death of Estella C. Roberts at Manchester, Mass.

I also performed four days' strike duty at Lawrence.

GENERAL OFFENCES PROSECUTED.

Accessory to murder, ...	2
Accessory to assault to kill, ...	1
Adultery, ...	6
Arson, ...	14
Assault and battery, ...	22
Assault with intent to kill, ...	14
Assault with a dangerous weapon, ...	9
Assault with intent to rape, ...	2

¹ Appointed June 21, 1912.

² Appointed Sept. 6, 1912.

Attempt to rape, ...	2
Attempt to burn a building, ...	5
Attempt to commit larceny from the person, ...	2
Bastardy, ...	1
Breaking and entering and larceny, ...	48
Burning a building, ...	21
Carrying concealed weapons, ...	4
Conspiracy, ...	13
Criminal trespass, ...	49
Cruelty to children, ...	1
Delinquent child, ...	1
Disturbing the peace, ...	23
Drunkenness, ...	2
Forgery, ...	1
Illegal sale of liquor, ...	4
Illegal collection agency, ...	1
Incest, ...	1
Inciting to riot, ...	1
Indecent exposure, ...	1
Insane, ...	2
Keeping a disorderly house, ...	2
Keeping a hotel without a license, ...	1
Larceny, ...	88
Larceny in a building, ...	6
Larceny from the person, ...	2
Lewd and lascivious cohabitation, ...	8
Liquor nuisance, ...	9
Making threats, ...	1
Manslaughter, ...	3
Murder, ...	12
Neglect of children, ...	2
Nonsupport, ...	2
Perjury, ...	5
Rape, ...	5
Receiving stolen property, ...	7
Refusing to post notices, ...	1
Rioting, ...	40
Robbery, ...	2
Selling adulterated turpentine, ...	3
Suspicious persons, ...	4
Tramps, ...	6
Unnatural act, ...	1
Violation of automobile law, ...	1
Violation of fishery law, ...	5
Violation of insurance law, ...	7
Violation of labor law, ...	1

Violation of muffler law, ...	25
Vagabonds, ...	8
Vagrancy, ...	5
Vote buying, ...	3
	518

REPORT OF WALTER L. WEDGER, CHEMIST AND EXPERT ON EXPLO-
SIVES AND INFLAMMABLES.

Inspections.

Acetylene gas, storage of, ...	4
Celluloid comb manufacturing shops, ...	1
Chemicals, storage of, ...	11
Chemical refining plants, ...	6
Dangerous buildings, ...	2
Dynamite, storage of, at land magazines, ...	8
Dynamite, storage of, on magazine boats, ...	10
Explosive cigars, storage and sale of, ...	2
Fireworks and firecracker stores, ...	71
Fireworks, firecracker and pyrotechnical signal manufactories, ...	9
Flash-light powders, storage and sale of, ...	12
Gasoline, keeping and storage of, at garages, ...	38
Gasoline supply boats on Boston waters, ...	10
Gasoline, use of, in hat cleaning and tailors' shops, ...	2
Gunpowder, storage of, ...	1
Inflammable blacking manufactories, ...	9
Inflammable cement manufactories, ...	2
Motion-picture films, storage of, ...	10
Naphtha cleansing establishments, ...	8
Naphtha handling and storage at manufactories, ...	7
Oxygen generating plants, ...	3
Patent-leather varnish manufactories, ...	4
Pintsch gas plants, ...	2
Pyrotechnical signals, storage of, ...	12
Pyroxylin solutions, storage of, ...	2
Refinery storage plants, volatile inflammable fluids, ...	7
Rubber goods manufactories, ...	2
Volatile inflammable fluids, storage of, other than garages, ...	8
Waste paper and rags, storage of, ...	2
Total inspections, ...	265

Investigations.

Acetylene gas, explosion and fire, . . .	1
Chemical fires and explosions, . . .	7
Complaint charging excessive noise at fireworks display, . . .	1
Dynamite, explosion of, in dwelling, . . .	1
Dynamite found in State road, . . .	1
Explosions and fires causing injuries and death, . . .	3
Explosives, unlawful manufacture of, . . .	1
Fires in paint and oil stores, . . .	3
Fire among pyrotechnical railroad signals, . . .	1
Garage fires, . . .	2
Overheated tank of acetylene gas, . . .	1
Sale of dangerous chemicals, . . .	1
Transportation of dynamite in Boston streets, . . .	2
Total investigations, . . .	25

Analyses, Tests and Examinations.

Analyses of fireworks compounds, . . .	5
Analyses of suspicious compounds, . . .	3
Analyses of oils, . . .	3
Examination made and possession taken of parcels of dynamite and other explosives, placed with intent to injure, . . .	5
Examination and destruction of alleged bomb, . . .	1
Packages of dynamite and other explosives destroyed, . . .	5
Stolen dynamite reported, . . .	2
Tests of vapors pyroxylin varnish, . . .	1
Tests of inflammable gases under pressure, . . .	3
Tests of parlor fireworks and novelties, . . .	1
Total, . . .	29

In addition to the above, I have been detailed to attend several conferences with individuals, firms and corporations, relative to the storage, transportation and use of explosives and inflammables, and the construction and location of buildings and magazines in connection therewith. I have also assisted in the compilation of the technical part of regulations relative to explosive and inflammable fluids and compounds.

INSPECTION DEPARTMENT.

FREDERICK W. MERRIAM,

Deputy Chief.

GEORGE A. LUCK,

Acting Chief Inspector, Boiler Inspection Department.

INSPECTION DEPARTMENT.

FREDERICK W. MERRIAM, *Deputy Chief*.
GEORGE A. LUCK, *Acting Chief Inspector of Boilers*.

BUILDING AND FACTORY INSPECTION.

Among the duties of the building inspectors of the inspection department are the consideration of plans and specifications, the supervision of erection and alterations, and the inspection, relative to the egresses and prevention of spread of fire, of public buildings, public or private institutions, school houses, churches, theatres, public halls, places of assemblage or places of public resort, and buildings designed for or in which ten or more people are employed above the second story of a factory, workshop, mercantile and other establishment, and hotels, family hotels, apartment houses, boarding houses, lodging houses or tenement houses, designed for ten or more rooms or in which ten or more people reside or lodge above the second story; the supervision of the installation of methods of heating and ventilation, and of sanitary appliances; the supervision of installation and inspection of elevators, except as otherwise provided for; the protection of workmen in the erection of iron or steel frame buildings; the inspection of buildings or other structures alleged to be unsafe and so reported by the mayor and aldermen of a city or the selectmen of a town; and the monthly inspection of theatres and semiannual inspection of public and special halls, except in the city of Boston.

I would respectfully call attention to the present unsatisfactory condition of the various building laws enforced by this department. As from time to time new building laws have been placed among the statutes of this Commonwealth,

and each succeeding act has added to the list of laws which it is the duty of this department to enforce, the necessity for a rearrangement, so that the subject-matter may readily be found under proper heading, and the embodiment of the latest and most modern ideas of construction may be made, has become more and more apparent. Such a rearrangement and embodiment would greatly facilitate the work of their enforcement and would render them at once easy of access. It would also be of great advantage not only to the work of this department, but to that large portion of the public to whom these numerous acts apply, and who are, therefore, immediately and directly interested. I would respectfully suggest that a codification of such statutes be made.

The primary duties of the factory inspectors are to enforce the laws relating to labor and the employment of women and minors in factories, mechanical and manufacturing establishments, workshops and mercantile establishments; the safeguarding of belting, shafting, gearing, drums, elevators and such machinery as they may deem dangerous to employees therein while engaged in their ordinary duties; providing communication between the engineer's room and such rooms where machinery is run by steam; prohibiting the locking of any egress doors during working hours; requiring specifications and rates of compensation to be furnished in certain factories, and the investigation of complaints and accidents.

In addition to the above, and their many other duties, both the building and factory inspectors are charged with the enforcement of the laws relating to the exhibition of moving pictures and other entertainments, a class of work which is increasing very rapidly.

The individual reports of the inspectors, as hereinafter given, show the class and large amount of work performed by them, so far as such reports can be made to show it, and from the recapitulation of such reports it will be seen, relating to the erection of buildings, that 561 plans were filed, 491 changes directed, and that 473 visits were made to examine changes and 1,827 visits to examine construction; relating to existing buildings, 5,771 inspections and 4,047

visits for various purposes were made to the buildings specified.

It will also be seen, referring to the recapitulation of the factory inspectors' reports, that 15,641 inspections and 7,123 visits for various purposes were made to the establishments specified, and that 657,502 persons were employed on the date of such inspections.

During the year the inspectors have inspected 204 moving-picture machines and 124 booths, renewed 513 operators' licenses, and examined 564 applicants for operators' licenses, for which the amount of \$2,861 has been received and paid to the Treasurer of the Commonwealth, this amount being an increase over that of last year of about 65 per cent.

The following list specifies the prosecutions which have been made during the year by the inspectors of factories and public buildings:—

CAUSE OF PROSECUTION.	Number of Prosecutions.	Fined.	Filed.	Pending.	Discharged.	Defaulted.	Total Amount of Fines and Costs.
Employing children under fifteen years of age on stage.	3	1	-	2	-	-	\$20 00
Employing children under fourteen years of age after 7 o'clock P.M.	1	-	-	-	1	-	-
Employing illiterate minors not attending evening school.	2	-	1	-	1	-	-
Employing illiterate minors under sixteen years of age in factories.	1	-	1	-	-	-	-
Employing minors between 10 P.M. and 6 A.M.	9	8	-	1	-	-	140 00
Employing minors under fourteen years of age in factories.	1	1	-	-	-	-	25 00
Employing minors under sixteen years of age to operate elevators.	1	-	-	-	-	1	-
Employing minors without age and schooling certificate.	12	4	6	1	1	-	65 00
Employing women or minors at time other than stated in time notice.	44	22	18	-	4	-	1,167 80
Employing women or minors more than ten hours a day.	1	-	-	-	1	-	-
Employing women or minors more than fifty-eight hours a week.	1	-	1	-	-	-	-
Failure to post time notice, . . .	16	11	5	-	-	-	550 60
Imposing fine for imperfections in weaving.	1	1	-	-	-	-	50 00
Not properly heating electric cars, .	1	-	-	-	1	-	-
Taking false oath, ...	1	1	-	-	-	-	25 00
Violation of eight-hour law, . . .	6	3	-	-	3	-	225 00
Violation of law relative to exits, .	1	-	-	-	1	-	-
Violation of weekly payment law, .	3	2	1	-	-	-	30 00
Totals, ...	105	54	33	4	13	1	\$2,298 40

ASSIGNMENTS OF DISTRICTS, BUILDING INSPECTION.

The following assignments of districts are now in force: —

INSPECTORS OF PUBLIC BUILDINGS.

DISTRICT No. 1.

ANSEL J. CHENEY, *Building Inspector.*

Office, 12 Kinsman Block, Salem.

Andover	GLOUCESTER	Middleton
BEVERLY	Groveland	North Andover
Boxford	HAVERHILL	Rockport
Danvers	LAWRENCE	Topsfield
Essex	Manchester	Wenham
Georgetown	Methuen	

DISTRICT No. 2.

RICHARD S. BEYER, *Building Inspector.*

Office, 12 Kinsman Block, Salem.

Amesbury	Merrimac	SALEM
Hamilton	Nahant	Salisbury
Ipswich	Newbury	Saugus
LYNN	NEWBURYPORT	Swampscott
Lynnfield	Peabody	West Newbury
Marblehead	Rowley	

DISTRICT No. 3.

CHARLES E. BURFITT, *Building Inspector.*

Office, 2 State House, Boston.

Arlington	Holliston	Sherborn
Ashland	Hopkinton	SOMERVILLE
Belmont	MALDEN	WALTHAM
CAMBRIDGE	MEDFORD	Watertown
EVERETT	Natick	Wayland
Framingham	NEWTON	Weston

DISTRICT No. 4.HORACE F. BALL, *Building Inspector.*

Office, 2 State House, Boston.

Acton	Groton	Shirley
Ashby	Hudson	Stoneham
Ayer	Lexington	Stow
Bedford	Lincoln	Sudbury
Billerica	Littleton	Tewksbury
Boxborough	LOWELL	Townsend
Burlington	MARLBOROUGH	Tyngsborough
Carlisle	Maynard	Wakefield
Chelmsford	MELROSE	Westford
Concord	North Reading	Wilmington
Dracut	Pepperell	Winchester
Dunstable	Reading	WOBURN

DISTRICT No. 5.WILLIAM J. MCKEEVER, *Building Inspector.*

Office, 2 State House, Boston.

Avon	Franklin	QUINCY
Bellingham	Holbrook	Randolph
Braintree	Medfield	Sharon
Bridgewater	Medway	Stoughton
Brockton	Millis	Walpole
Brookline	Milton	Wellesley
Canton	Needham	West Bridgewater
Dedham	Norfolk	Westwood
Dover	Norwood	Weymouth
East Bridgewater	Plainville	Wrentham
Foxborough		

DISTRICT No. 6.JOHN H. PLUNKETT, *Building Inspector.*

Office, 2 State House, Boston.

Abington	Hanson	Plymouth
Carver	Hingham	Plympton
CHELSEA	Hull	Revere
Cohasset	Kingston	Rockland
Duxbury	Marshfield	Scituate
Halifax	Norwell	Whitman
Hanover	Pembroke	Winthrop

DISTRICT No. 7.LEMUEL POPE, *Building Inspector.*

Office, Hudner Building, Fall River.

Attleborough	Freetown	Seekonk
Berkley	Mansfield	Somerset
Dartmouth	North Attleborough	Swansea
Dighton	Norton	TAUNTON
Easton	Raynham	Westport
FALL RIVER	Rehoboth	

DISTRICT No. 8.FRANK W. SAUNDERS, *Building Inspector.*

Office, Hudner Building, Fall River.

Acushnet	Gay Head	Orleans
Barnstable	Gosnold	Provincetown
Bourne	Harwich	Rochester
Brewster	Lakeville	Sandwich
Chatham	Marion	Tisbury
Chilmark	Mashpee	Truro
Dennis	Mattapoisett	Wareham
Eastham	Middleborough	Wellfleet
Edgartown	Nantucket	West Tisbury
Fairhaven	NEW BEDFORD	Yarmouth
Falmouth	Oak Bluffs	

DISTRICT No. 9.CHARLES ADAMS, *Building Inspector.*

Office, 476 Main Street, Worcester.

Auburn	Leicester	Spencer
Blackstone	Mendon	Sturbridge
Brookfield	Milford	Sutton
Charlton	Millbury	Upton
Douglas	Northbridge	Uxbridge
Dudley	North Brookfield	Warren
Grafton	Oxford	Webster
Hopedale	Southbridge	West Brookfield

Also the city of WORCESTER south of Pleasant, Front and Shrewsbury streets.

DISTRICT No. 10.WALTER A. PENNIMAN, *Building Inspector.*

Office, 476 Main Street, Worcester.

Ashburnham	Holden	Royalston
Athol	Hubbardston	Rutland
Barre	Lancaster	Shrewsbury
Berlin	Leominster	Southborough
Bolton	Lunenburg	Sterling
Boylston	New Braintree	Templeton
Clinton	Northborough	Westborough
Dana	Oakham	West Boylston
FITCHBURG	Paxton	Westminster
Gardner	Petersham	Winchendon
Hardwick	Phillipston	
Harvard	Princeton	

Also the city of WORCESTER north of Shrewsbury, Front and Pleasant streets.

DISTRICT No. 11.ERNEST E. CLEVELAND, *Building Inspector.*

Office, 21 Besse Place, Springfield.

Agawam	Hadley	Russell
Amherst	Hampden	Southampton
Belchertown	Hatfield	South Hadley
Blandford	Holland	Southwick
Brimfield	HOLYOKE	SPRINGFIELD
Chester	Huntington	Tolland
Chesterfield	Longmeadow	Wales
CHICOPEE	Ludlow	Ware
Cummington	Middlefield	Westfield
Easthampton	Monson	Westhampton
East Longmeadow	Montgomery	West Springfield
Enfield	NORTHAMPTON	Wilbraham
Goshen	Palmer	Williamsburg
Granby	Pelham	Worthington
Granville	Plainfield	
Greenwich	Prescott	

DISTRICT No. 12.JOHN F. CASEY, *Building Inspector.*

Office, Kimbell Block, North Adams.

Adams	Hawley	PITTSFIELD
Alford	Heath	Richmond
Ashfield	Hinsdale	Rowe
Becket	Lanesborough	Sandisfield
Bernardston	Lee	Savoy
Buckland	Lenox	Sheffield
Charlemont	Leverett	Shelburne
Cheshire	Leyden	Shutesbury
Clarksburg	Monroe	Stockbridge
Colrain	Montague	Sunderland
Conway	Monterey	Tyringham
Dalton	Mount Washington	Warwick
Deerfield	New Ashford	Washington
Egremont	New Marlborough	Wendell
Erving	New Salem	West Stockbridge
Florida	NORTH ADAMS	Whately
Gill	Northfield	Williamstown
Great Barrington	Orange	Windsor
Greenfield	Otis	
Hancock	Peru	

SPECIAL DUTY.HARRY ATKINSON, *Building Inspector.*

Office, 2 State House, Boston.

REPORTS OF INSPECTORS OF BUILDINGS.**REPORT OF INSPECTOR ANSEL J. CHENEY.***Relating to the Erection of Buildings.*

Theatres: plans submitted, 6; plans filed, 2; consultations, 39; changes directed, 14; visit to examine changes, 25; visit to examine construction, 63.

Public Halls: plans submitted, 13; plans filed, 12; consultations, 24; changes directed, 17; visit to examine changes, 34; visit to examine construction, 37.

Special Halls: plans submitted, 2; plans filed, 2; consultations, 10; changes directed, 6; visit to examine changes, 5; visit to examine construction, 6.

- Other Halls: plans submitted, 10; plans filed, 7; consultations, 14; changes directed, 10; certificates issued, 2; visit to examine changes, 5; visit to examine construction, 10.
- Churches: plans submitted, 5; plans filed, 3; consultations, 1; changes directed, 3; visit to examine changes, 6; visit to examine construction, 13.
- Schools: plans submitted, 7; plans filed, 4; consultations, 31; changes directed, 20; visit to examine changes, 16; visit to examine construction, 28.
- Hotels, Lodging and Boarding Houses: plans submitted, 7; plans filed, 1; consultations, 8; changes directed, 8; visit to examine changes, 13; visit to examine construction, 18.
- Apartment and Tenement Houses: plans submitted, 7; plans filed, 9; consultations, 29; changes directed, 19; visit to examine changes, 21; visit to examine construction, 54.
- Manufacturing Buildings: plans submitted, 12; plans filed, 7; consultations, 5; changes directed, 3; visit to examine construction, 21.
- Mercantile Buildings: plans submitted, 2; plans filed, 2; consultations, 8; changes directed, 8; visit to examine changes, 5; visit to examine construction, 7.

Relating to Existing Buildings.

- Theatres: inspections, 178; visits, 58; inspection of heating and ventilation, 11; certificates issued, 1.
- Public Halls: inspections, 81; visits, 11; certificates issued, 2.
- Special Halls: inspections, 16; visits, 3.
- Other Halls: inspections, 20; visits, 10.
- Churches: inspections, 5; visits, 2.
- Schools: inspections, 28; visits, 41; inspection of heating and ventilation, 15.
- Hotels, Lodging and Boarding Houses: inspections, 83; visits, 40; certificates issued, 14.
- Apartment and Tenement Houses: inspections, 16; visits, 23.
- Manufacturing Buildings: inspections, 8; visits, 5.
- Mercantile Buildings: inspections, 1; visits, 1.

Miscellaneous Duties.

- Orders issued: written, 21; verbal, 218.
- Orders complied with: written, 25; verbal, 202.
- Orders in process of compliance: verbal, 16.
- Inspections for special permits for entertainments, 3; approved, 3.
- Moving-picture machine booths inspected, 6; approved, 6.
- Moving-picture machines inspected, 14; approved, 14.
- Cases and complaints investigated, 7; reported, 5.
- Visited places of entertainments for investigation, 33.
- Special duty during strikes: at Lawrence, four days.

REPORT OF INSPECTOR RICHARD S. BEYER.

Relating to the Erection of Buildings.

- Theatres: plans submitted, 10; plans filed, 4; consultations, 9; changes directed, 10; certificates issued, 1; visit to examine changes, 24; visit to examine construction, 41.
- Public Halls: plans submitted, 4; plans filed, 1; consultations, 5; changes directed, 3; visit to examine changes, 13; visit to examine construction, 4.
- Special Halls: plans submitted, 2; plans filed, 1; consultations, 1; visit to examine changes, 9.
- Other Halls: plans submitted, 1; plans filed, 1; consultations, 2; changes directed, 2; visit to examine changes, 13; visit to examine construction, 14.
- Churches: plans submitted, 8; plans filed, 8; consultations, 5; changes directed, 2; visit to examine changes, 3; visit to examine construction, 10.
- Schools: plans submitted, 14; plans filed, 6; consultations, 23; changes directed, 15; certificates issued, 4; visit to examine changes, 5; visit to examine construction, 28.
- Hotels, Lodging and Boarding Houses: plans submitted, 17; plans filed, 6; consultations, 20; changes directed, 17; certificates issued, 5; visit to examine changes, 5; visit to examine construction, 24.
- Apartment and Tenement Houses: plans submitted, 32; plans filed, 35; consultations, 41; changes directed, 36; certificates issued, 34; visit to examine changes, 3; visit to examine construction, 125.
- Manufacturing Buildings: plans submitted, 4; plans filed, 4; consultations, 2; changes directed, 1; certificates issued, 3; visit to examine changes, 4; visit to examine construction, 6.
- Mercantile Buildings: plans submitted, 1; plans filed, 2; consultations, 1; changes directed, 1; certificates issued, 1; visit to examine changes, 3; visit to examine construction, 13.
- Other Buildings: plans submitted, 7; plans filed, 6; consultations, 7; changes directed, 6; certificates issued, 4; visit to examine changes, 8; visit to examine construction, 15.

Relating to Existing Buildings.

- Theatres: inspections, 197; visits, 102; inspection of heating and ventilation, 1.
- Public Halls: inspections, 99; visits, 81.
- Special Halls: inspections, 14; visits, 3.
- Other Halls: inspections, 37; visits, 15; certificates issued, 12.
- Churches: inspections, 5; visits, 6.
- Schools: inspections, 7; visits, 12; inspection of heating and ventilation, 6.

Hotels, Lodging and Boarding Houses: inspections, 24; visits, 16; certificates issued, 4.

Apartment and Tenement Houses: visits, 2.

Manufacturing Buildings: inspections, 4; visits, 106.

Mercantile Buildings: inspections, 1; visits, 17.

Other Buildings: inspections, 4; visits, 217.

Miscellaneous Duties.

Orders issued: written, 32; verbal, 36.

Orders complied with: written, 35; verbal, 36.

Orders in process of compliance: written, 11.

Inspections for special permits for entertainments, 11; approved, 11.

Moving-picture machine booths inspected, 2; approved, 2.

Moving-picture machines inspected, 7; approved, 6.

Moving-picture machine operators' licenses renewed, 5.

Cases and complaints investigated, 20; reported, 10.

Visited places of entertainment for investigation, 72.

Prosecutions made, 2; fines and costs, \$20.

Special duty during strikes: at Lawrence, three days.

REPORT OF INSPECTOR CHARLES E. BURFITT.

Relating to the Erection of Buildings.

Theatres: plans submitted, 3; plans filed, 3; consultations, 9; changes directed, 9; certificates issued, 2; visit to examine changes, 10; visit to examine construction, 5.

Public Halls: plans submitted, 2; plans filed, 2; consultations, 2; certificates issued, 2; visit to examine construction, 2.

Special Halls: consultations, 1.

Other Halls: plans submitted, 1; plans filed, 1; certificates issued, 1; visit to examine changes, 2; visit to examine construction, 4.

Churches: plans submitted, 10; plans filed, 10; consultations, 4; changes directed, 5; certificates issued, 2; visit to examine changes, 3; visit to examine construction, 4.

Schools: plans submitted, 7; plans filed, 7; consultations, 2; changes directed, 2; certificates issued, 5; visit to examine changes, 5; visit to examine construction, 6.

Hotels, Lodging and Boarding Houses: plans submitted, 3; plans filed, 3; consultations, 2; changes directed, 2; certificates issued, 3; visit to examine construction, 1.

Apartment and Tenement Houses: plans submitted, 8; plans filed, 8; consultations, 4; certificates issued, 4; visit to examine construction, 5.

Manufacturing Buildings: plans submitted, 18; plans filed, 18; consultations, 2; changes directed, 2; certificates issued, 13; visit to examine changes, 2; visit to examine construction, 5.

Mercantile buildings: plans submitted, 4; plans filed, 4; certificates issued, 2; visit to examine construction, 3.
Other Buildings: plans submitted, 11; plans filed, 11; consultations, 6; changes directed, 3; certificates issued, 4; visit to examine changes, 3; visit to examine construction, 9.

Relating to Existing Buildings.

Theatres: inspections, 167; visits, 48.
Public Halls: inspections, 82; visits, 17.
Special Halls: inspections, 137; visits, 16.
Other Halls: inspections, 82; visits, 11; certificates issued, 85.
Churches: inspections, 22; visits, 11.
Schools: inspections, 28; visits, 6; inspection of heating and ventilation, 10.
Hotels, Lodging and Boarding Houses: inspections, 11; visits, 35; certificates issued, 3.
Apartment and Tenement Houses: inspections, 4; visits, 3; certificates issued, 3.
Manufacturing Buildings: inspections, 1; visits, 2; certificates issued, 8.
Other Buildings: inspections, 6; visits, 12; certificates issued, 5.

Miscellaneous Duties.

Orders issued: written, 66; verbal, 20.
Orders complied with: written, 77; verbal, 20.
Inspections for special permits for entertainments, 38; approved, 38.
Moving-picture machine booths inspected, 4; approved, 3.
Moving-picture machines inspected, 7; approved, 7.
Cases and complaints investigated, 3; reported, 3.
Visited places of entertainment for investigation, 15.
Elevators inspected, 13.

REPORT OF INSPECTOR HORACE F. BALL.

Relating to the Erection of Buildings.

Theatres: plans submitted, 4; consultations, 14; changes directed, 4; visit to examine construction, 20.
Public Halls: plans filed, 1; consultations, 4; visit to examine construction, 5.
Special Halls: plans filed, 1; consultations, 2; visit to examine construction, 9.
Other Halls: consultations, 6; visit to examine construction, 3.
Churches: plans submitted, 1; plans filed, 1; consultations, 5; visit to examine construction, 4.
Schools: plans submitted, 9; plans filed, 4; consultations, 22; changes directed, 1; visit to examine construction, 4.

Hotels, Lodging and Boarding Houses: visit to examine construction, 2.

Apartment and Tenement Houses: plans filed, 1; consultations, 1; visit to examine changes, 1; visit to examine construction, 3.

Manufacturing Buildings: plans submitted, 4; plans filed, 2; consultations, 3; changes directed, 1; visit to examine construction, 6.

Mercantile Buildings: plans filed, 1; visit to examine construction, 1.

Other Buildings: plans submitted, 12; plans filed, 6; consultations, 39; changes directed, 16; certificates issued, 3; visit to examine changes, 7; visit to examine construction, 44.

Relating to Existing Buildings.

Theatres: inspections, 138; visits, 30; certificates issued, 2.

Public Halls: inspections, 51; visits, 24; certificates issued, 2.

Special Halls: inspections, 115; visits, 9.

Other Halls: inspections, 108; visits, 25; certificates issued, 49.

Churches: inspections, 5; visits, 10.

Schools: inspections, 31; visits, 18.

Hotels, Lodging and Boarding Houses: inspections, 17; visits, 3; certificates issued, 72.

Apartment and Tenement Houses: inspections, 4; visits, 5.

Manufacturing Buildings: visits, 11.

Mercantile Buildings: visits, 2.

Other Buildings: inspections, 8; visits, 23; certificates issued, 7.

Miscellaneous Duties.

Orders issued: written, 12; verbal, 63.

Orders complied with: written, 11; verbal, 56.

Orders in process of compliance: written, 1; verbal, 7.

Inspections for special permits for entertainments, 18; approved, 18.

Moving-picture machine booths inspected, 3; approved, 3.

Moving-picture machines inspected, 4; approved, 4.

Cases and complaints investigated, 5; reported, 4.

Visited places of entertainment for investigation, 48.

REPORT OF INSPECTOR WILLIAM J. McKEEVER.

Relating to the Erection of Buildings.

Theatres: plans submitted, 2; plans filed, 2; consultations, 17; changes directed, 7; certificates issued, 1; visit to examine changes, 1; visit to examine construction, 24.

Public Halls: plans submitted, 2; plans filed, 2; consultations, 18; changes directed, 4; certificates issued, 1; visit to examine changes, 2; visit to examine construction, 6.

Special Halls: consultations, 7; visit to examine changes, 2; visit to examine construction, 11.

Other Halls: plans submitted, 3; plans filed, 3; consultations, 16; changes directed, 2; certificates issued, 2; visit to examine changes, 6; visit to examine construction, 7.

Churches: plans submitted, 5; plans filed, 5; consultations, 3; changes directed, 3; certificates issued, 1; visit to examine construction, 4.

Schools: plans submitted, 9; plans filed, 9; consultations, 17; changes directed, 2; certificates issued, 4; visit to examine changes, 1; visit to examine construction, 13.

Hotels, Lodging and Boarding Houses: plans submitted, 3; plans filed, 3; consultations, 4; changes directed, 2; certificates issued, 1; visit to examine changes, 3; visit to examine construction, 5.

Apartment and Tenement Houses: plans submitted, 4; plans filed, 4; consultations, 5; certificates issued, 3; visit to examine changes, 2; visit to examine construction, 14.

Manufacturing Buildings: plans submitted, 5; plans filed, 5; consultations, 7; changes directed, 1; certificates issued, 2; visit to examine construction, 3.

Mercantile Buildings: plans submitted, 4; plans filed, 4; certificates issued, 1; visit to examine construction, 5.

Other Buildings: plans submitted, 10; plans filed, 10; consultations, 13; changes directed, 2; certificates issued, 5; visit to examine construction, 5.

Relating to Existing Buildings.

Theatres: inspections, 76; visits, 11.

Public Halls: inspections, 69; visits, 67; certificates issued, 3.

Special Halls: inspections, 83; visits, 35.

Other Halls: inspections, 315; visits, 190; certificates issued, 232.

Churches: inspections, 45; visits, 42; certificates issued, 1.

Schools: inspections, 86; visits, 56; inspection of heating and ventilation, 4.

Hotels, Lodging and Boarding Houses: inspections, 56; visits, 32; certificates issued, 95.

Apartment and Tenement Houses: inspections, 3; visits, 7.

Manufacturing Buildings: visits, 6.

Mercantile Buildings: inspections, 1; visits, 5.

Other Buildings: inspections, 18; visits, 58; certificates issued, 35.

Miscellaneous Duties.

Orders issued: written, 91; verbal, 80.

Orders complied with: written, 80; verbal, 65.

Orders in process of compliance: written, 11; verbal, 15.

Inspections for special permits for entertainments, 5; approved, 5.

Moving-picture machine booths inspected, 7; approved, 7.
 Moving-picture machines inspected, 2; approved, 2.
 Moving-picture machine operators' licenses renewed, 5.
 Cases and complaints investigated, 16; reported, 15.
 Visited places of entertainment for investigation, 16.
 Elevators inspected, 1; approved, 1.
 Prosecutions made, 3; fines and costs, \$70.
 Fifteen written and 28 verbal orders, from previous year, complied with.

REPORT OF INSPECTOR JOHN H. PLUNKETT.

Relating to the Erection of Buildings.

Theatres: plans submitted, 3; plans filed, 3; consultations, 5; changes directed, 4; visit to examine changes, 4; visit to examine construction, 5.
 Public Halls: plans submitted, 6; plans filed, 2; consultations, 8; changes directed, 7; visit to examine changes, 4; visit to examine construction, 5.
 Special Halls: plans submitted, 3; plans filed, 1; consultations, 11; changes directed, 3; visit to examine changes, 5; visit to examine construction, 22.
 Other Halls: plans submitted, 2; plans filed, 2; consultations, 3; changes directed, 4; certificates, 1; visit to examine changes, 3; visit to examine construction, 2.
 Churches: plans submitted, 7; plans filed, 5; consultations, 6; changes directed, 3; certificates issued, 1; visit to examine construction, 3.
 Schools: plans submitted, 11; plans filed, 10; consultations, 17; changes directed, 4; certificates issued, 3; visit to examine changes, 8.
 Hotels, Lodging and Boarding Houses: plans submitted, 4; consultations, 9; changes directed, 3; certificates issued, 2; visit to examine construction, 6.
 Apartment and Tenement Houses: plans submitted, 8; plans filed, 7; consultations, 8; changes directed, 5; visit to examine changes, 5; visit to examine construction, 11.
 Manufacturing Buildings: plans submitted, 5; plans filed, 4; consultations, 3; changes directed, 3; visit to examine changes, 3; visit to examine construction, 6.
 Mercantile Buildings: plans submitted, 2; plans filed, 1; consultations, 1; changes directed, 1; visit to examine changes, 1.
 Other Buildings: plans submitted, 3; plans filed, 4; consultations, 2; changes directed, 1; visit to examine changes, 1; certificates issued, 1; visit to examine construction, 3.

Relating to Existing Buildings.

Theatres: inspections, 158; visits, 70.
Public Halls: inspections, 49; visits, 30; certificates issued, 1.
Special Halls: inspections, 35; visits, 19; certificates issued, 1.
Other Halls: inspections, 99; visits, 88; certificates issued, 91.
Churches: visits, 23.
Schools: inspections, 9; visits, 19; inspection of heating and ventilation, 9.
Hotels, Lodging and Boarding Houses: inspections, 107; visits, 50; certificates issued, 46.
Apartment and Tenement Houses: inspections, 1; visits, 16.
Manufacturing Buildings: inspections, 1; visits, 11.
Mercantile Buildings: visits, 2.
Other Buildings: inspections, 7; visits, 148.

Miscellaneous Duties.

Orders issued: written, 39; verbal, 5.
Orders complied with: written, 26; verbal, 5.
Orders in process of compliance: written, 50.
Inspections for special permits for entertainments, 11; approved, 11.
Moving-picture machine booths inspected, 8; approved, 8.
Moving-picture machines inspected, 14; approved, 6.
Moving picture machine operators' licenses renewed, 10.
Cases and complaints investigated, 8; reported, 8.
Visited places of entertainment for investigation, 11.
Acting as deputy chief, inspection department, seventeen days.

REPORT OF INSPECTOR LEMUEL POPE.

Relating to the Erection of Buildings.

Theatres: plans submitted, 4; plans filed, 8; consultations, 34; changes directed, 6; certificates issued, 6; visit to examine changes, 10; visit to examine construction, 27.
Public Halls: consultations, 6; changes directed, 1; visit to examine changes, 7; visit to examine construction, 1.
Special Halls: plans submitted, 1; plans filed, 2; consultations, 14; changes directed, 2; certificates issued, 1; visit to examine changes, 1; visit to examine construction, 28.
Other Halls: plans submitted, 1; plans filed, 6; consultations, 35; changes directed, 6; certificates issued, 2; visit to examine changes, 6; visit to examine construction, 53.
Churches: plans filed, 1; consultations, 4; changes directed, 1; certificates issued, 1; visit to examine changes, 1; visit to examine construction, 43.

Schools: plans submitted, 1; plans filed, 9; consultations, 51; changes directed, 3; certificates issued, 4; visit to examine changes, 3; visit to examine construction, 46.

Hotels, Lodging and Boarding Houses: plans filed, 3; consultations, 11; changes directed, 2; certificates issued, 2; visit to examine changes, 2; visit to examine construction, 25.

Apartment and Tenement Houses: plans submitted, 5; plans filed, 4; consultations, 22; certificates issued, 2; visit to examine changes, 3; visit to examine construction, 25.

Manufacturing Buildings: consultations, 4; visit to examine changes, 1; visit to examine construction, 2.

Mercantile Buildings: consultations, 9; certificates issued, 1; visit to examine changes, 3; visit to examine construction, 19.

Other Buildings: plans submitted, 1; plans filed, 3; consultations, 5; changes directed, 1; certificates issued, 2; visit to examine changes, 1; visit to examine construction, 9.

Relating to Existing Buildings.

Theatres: inspections, 111; visits, 130.

Public Halls: inspections, 47; visits, 63.

Special Halls: inspections, 74; visits, 48.

Other Halls: inspections, 150; visits, 143; certificates issued, 150.

Churches: inspections, 1; visits, 11.

Schools: inspections, 8; visits, 23; inspections of heating and ventilation, 2.

Hotels, Lodging and Boarding Houses: inspections, 67; visits, 54; certificates issued, 204.

Apartment and Tenement Houses: inspections, 8; visits, 25; certificates issued, 3.

Manufacturing Buildings: inspections, 2; visits, 7.

Mercantile Buildings: inspections, 1; visits, 7.

Other Buildings: visits, 3.

Miscellaneous Duties.

Orders issued: written, 49; verbal, 70.

Orders complied with: written, 39; verbal, 79.

Orders in process of compliance: written, 29; verbal, 18.

Inspections for special permits for entertainments, 17; approved, 17.

Moving-picture machine booths inspected, 13; approved, 12.

Moving-picture machines inspected, 17; approved, 17.

Moving-picture machine operators' licenses renewed, 18.

Applicants to operate moving-picture machines examined, 7.

Applicants to operate moving-picture machines licensed, 6.

Applicants to operate moving-picture machines rejected, 1.

Cases and complaints investigated, 17; reported, 12.
Visited places of entertainment for investigation, 43.
Orders outstanding Oct. 31, 1911: written, 19; verbal, 27.

REPORT OF INSPECTOR DAVID H. DYER.¹

Relating to the Erection of Buildings.

Theatres: consultations, 3; changes directed, 3.
Public Halls: consultations, 19; changes directed, 1; visit to examine changes, 5; visit to examine construction, 7.
Other Halls: consultations, 2; changes directed, 2; visit to examine changes, 1.
Churches: consultations, 4; changes directed, 4; visit to examine construction, 3.
Schools: consultations, 4; changes directed, 3; visit to examine changes, 1; visit to examine construction, 3.
Apartment and Tenement Houses: consultations, 3; changes directed, 1.
Manufacturing Buildings: plans submitted, 2; plans filed, 2; consultations, 3; changes directed, 2; certificates issued, 2; visit to examine construction, 1.
Mercantile Buildings: visit to examine construction, 1.
Other Buildings: consultations, 1.

Relating to Existing Buildings.

Theatres: inspections, 22; visits, 95.
Public Halls: inspections, 22; visits, 55.
Other Halls: inspections, 4; visits, 17; certificates issued, 1.
Churches: inspections, 1; visits, 5.
Schools: visits, 2.
Hotels, Lodging and Boarding Houses: visits, 8.
Apartment and Tenement Houses: inspections, 83; visits, 33; certificates issued, 60.
Manufacturing Buildings: inspections, 1; visits, 3.
Mercantile Buildings: inspections, 1; visits, 2.
Other Buildings: visits, 7.

Miscellaneous Duties.

Orders issued: written, 49; verbal, 46.
Orders complied with: written, 9; verbal, 46.
Orders in process of compliance: written, 40.
Inspections for special permits for entertainments, 7; approved, 7.

¹ Retired March 31, 1912.

Moving-picture machine booths inspected, 1; approved, 1.

Moving-picture machines inspected, 3; approved, 3.

Moving-picture machine operators' licenses renewed, 3.

REPORT OF INSPECTOR FRANK W. SAUNDERS.

Relating to the Erection of Buildings.

Theatres: plans submitted, 2; plans filed, 2; consultations, 31; changes directed, 9; visit to examine changes, 7; visit to examine construction, 21.

Public Halls: plans submitted, 1; plans filed, 1; consultations, 10; changes directed, 3; visit to examine changes, 4; visit to examine construction, 5.

Special Halls: consultations, 3; changes directed, 1; visit to examine changes, 1; visit to examine construction, 1.

Other Halls: plans submitted, 9; plans filed, 6; consultations, 14; changes directed, 6; certificates issued, 2; visit to examine changes, 7; visit to examine construction, 5.

Churches: plans submitted, 2; plans filed, 1; consultations, 3; visit to examine changes, 2; visit to examine construction, 4.

Schools: plans submitted, 8; plans filed, 8; consultations, 23; changes directed, 5; visit to examine changes, 3; visit to examine construction, 9.

Hotels, Lodging and Boarding Houses: plans submitted, 2; plans filed, 1; consultations, 4; changes directed, 3; visit to examine changes, 11.

Apartment and Tenement Houses: plans submitted, 13; plans filed, 10; consultations, 28; changes directed, 13; visit to examine changes, 12; visit to examine construction, 52.

Manufacturing Buildings: plans submitted, 4; plans filed, 3; consultations, 3; changes directed, 1; visit to examine changes, 1; visit to examine construction, 2.

Mercantile Buildings: plans submitted, 1; plans filed, 1; consultations, 2; visit to examine changes, 2; visit to examine construction, 2.

Other Buildings: plans submitted, 8; plans filed, 3; consultations, 16; changes directed, 3; visit to examine changes, 3; visit to examine construction, 14.

Relating to Existing Buildings.

Theatres: inspections, 156; visits, 51; inspections of heating and ventilation, 2.

Public Halls: inspections, 46; visits, 41.

Special Halls: inspections, 24; visits, 12.

Other Halls: inspections, 43; visits, 24; certificates issued, 33.

Churches: inspections, 2; visits, 4.

Schools: inspections, 18; visits, 10; inspection of heating and ventilation, 2.

Hotels, Lodging and Boarding Houses: inspections, 114; visits, 86; certificates issued, 54.

Apartment and Tenement Houses: inspections, 20; visits, 9.

Manufacturing Buildings: inspections, 2; visits, 2.

Other Buildings: inspections, 3; visits, 128; certificates issued, 2.

Miscellaneous Duties.

Orders issued: written, 156; verbal, 68.

Orders complied with: written, 123; verbal, 57.

Orders in process of compliance: written, 33; verbal, 11.

Inspections for special permits for entertainments, 3; approved, 3.

Moving-picture machine booths inspected, 10; approved, 10.

Moving-picture machines inspected, 7; approved, 7.

Moving-picture machine operators' licenses renewed, 22.

Cases and complaints investigated, 24; reported, 14.

Visited places of entertainment for investigation, 91.

Prosecutions made, 1.

REPORT OF INSPECTOR CHARLES ADAMS.

Relating to the Erection of Buildings.

Theatres: consultations, 2; visit to examine construction, 14.

Public Halls: consultations, 1; visit to examine changes, 1; visit to examine construction, 3.

Other Halls: plans submitted, 2; plans filed, 2; consultations, 3; visit to examine construction, 11.

Churches: plans submitted, 2; plans filed, 3; consultations, 1; visit to examine construction, 8.

Schools: plans submitted, 8; plans filed, 12; consultations, 5; visit to examine construction, 3.

Hotels, Lodging and Boarding Houses: plans submitted, 1; plans filed, 2; consultations, 3; visit to examine construction, 4.

Apartment and Tenement Houses: plans submitted, 6; plans filed, 7; consultations, 2; visit to examine construction, 9.

Manufacturing Buildings: plans filed, 7; consultations, 7; visit to examine construction, 6.

Other Buildings: plans filed, 1; consultations, 3.

Relating to Existing Buildings.

Theatres: inspections, 99; visits, 1.

Public Halls: inspections, 88; visits, 9.

Special Halls: inspections, 24.

Other Halls: inspections, 93; visits, 13; certificates issued, 40.

Churches: inspections, 9; visits, 5; certificates issued, 1.

Schools: inspections, 7; visits, 8; inspection of heating and ventilation, 7.

Hotels, Lodging and Boarding Houses: inspections, 76; visits, 8; certificates issued, 174.

Apartment and Tenement Houses: inspections, 3; visits, 6.

Manufacturing Buildings: inspections, 3; visits, 6.

Mercantile Buildings: visits, 3.

Other Buildings: inspections, 3; visits, 1.

Miscellaneous Duties.

Orders issued: written, 27; verbal, 11.

Orders complied with: written, 26; verbal, 11.

Orders in process of compliance: written, 1.

Inspections for special permits for entertainments, 16; approved, 16.

Moving-picture machine booths inspected, 10; approved, 10.

Moving-picture machines inspected, 7; approved, 7.

Moving-picture machine operators' licenses renewed, 16.

Cases and complaints investigated, 3.

Visited places of entertainment for investigation, 14.

REPORT OF INSPECTOR WALTER A. PENNIMAN.

Relating to the Erection of Buildings.

Theatres: plans submitted, 3; plans filed, 3; consultations, 17; changes directed, 2; certificates issued, 1; visit to examine changes, 3; visit to examine construction, 16.

Public Halls: consultations, 19; visit to examine changes, 3; visit to examine construction, 4.

Special Halls: consultations, 1; visit to examine construction, 1.

Other Halls: consultations, 6; visit to examine changes, 2; visit to examine construction, 8.

Churches: consultations, 9; changes directed, 1; visit to examine changes, 1; visit to examine construction, 2.

Schools: plans submitted, 6; plans filed, 9; consultations, 30; certificates issued, 5; visit to examine changes, 4; visit to examine construction, 10.

Hotels, Lodging and Boarding Houses: plans submitted, 3; plans filed, 3; consultations, 4; changes directed, 2; certificates issued, 3; visit to examine changes, 3; visit to examine construction, 4.

Apartment and Tenement Houses: plans submitted, 5; plans filed, 7; consultations, 3; changes directed, 2; certificates issued, 4; visit to examine changes, 1; visit to examine construction, 3.

Manufacturing Buildings: plans submitted, 5; plans filed, 5; consultations, 5; certificates issued, 5; visit to examine changes, 3; visit to examine construction, 10.

Mercantile Buildings: plans submitted, 3; plans filed, 3; consultations, 7; changes directed, 1; certificates issued, 2; visit to examine changes, 7; visit to examine construction, 12.

Other Buildings: plans submitted, 7; plans filed, 7; consultations, 18; changes directed, 1; certificates issued, 3; visit to examine changes, 1; visit to examine construction, 4.

Relating to Existing Buildings.

Theatres: inspections, 191; visits, 30.

Public Halls: inspections, 95; visits, 23.

Special Halls: inspections, 33; visits, 5.

Other Halls: inspections, 40; visits, 27; certificates issued, 27.

Churches: inspections, 28; visits, 12.

Schools: inspections, 21; visits, 21; inspection of heating and ventilation, 7.

Hotels, Lodging and Boarding Houses: inspections, 105; visits, 44; certificates issued, 162.

Apartment and Tenement Houses: inspections, 2; visits, 3.

Manufacturing Buildings: inspections, 10; visits, 26.

Mercantile Buildings: inspections, 5; visits, 15.

Other Buildings: inspections, 16; visits, 57.

Miscellaneous Duties.

Orders issued: written, 16; verbal, 16.

Orders complied with: written, 11; verbal, 15.

Orders in process of compliance: written, 5; verbal, 1.

Inspections for special permits for entertainments, 31; approved, 31.

Moving-picture machine booths inspected, 14; approved, 12.

Moving-picture machines inspected, 15; approved, 15.

Moving-picture machine operators' licenses renewed, 21.

Cases and complaints investigated, 10; reported, 3.

Visited places of entertainment for investigation, 7.

Special duty during strikes: at Lawrence, four days.

REPORT OF INSPECTOR ERNEST E. CLEVELAND.

Relating to the Erection of Buildings.

Theatres: plans submitted, 7; plans filed, 3; consultations, 6; changes directed, 5; certificates issued, 3; visit to examine construction, 25.

Public Halls: plans submitted, 3; plans filed, 3; consultations, 6; changes directed, 4; certificates issued, 2; visit to examine construction, 22.

Other Halls: plans submitted, 2; plans filed, 2; consultations, 4; changes directed, 1; certificates issued, 2; visit to examine construction, 8.

Churches: plans submitted, 7; plans filed, 7; consultations, 7; changes directed, 2; certificates issued, 7; visit to examine construction, 7.

Schools: plans submitted, 6; plans filed, 5; consultations, 5; changes directed, 2; certificates issued, 5; visit to examine construction, 10.

Hotels, Lodging and Boarding Houses: plans submitted, 7; plans filed, 7; consultations, 4; changes directed, 2; certificates issued, 7; visit to examine construction, 5.

Apartment and Tenement Houses: plans submitted, 54; plans filed, 43; consultations, 13; changes directed, 11; certificates issued, 43; visit to examine changes, 2; visit to examine construction, 43.

Manufacturing Buildings: plans submitted, 16; plans filed, 15; consultations, 6; changes directed, 4; certificates issued, 15; visit to examine changes, 1; visit to examine construction, 5.

Mercantile Buildings: plans submitted, 8; plans filed, 7; consultations, 5; changes directed, 4; certificates issued, 7; visit to examine changes, 1; visit to examine construction, 15.

Other Buildings: plans submitted, 4; plans filed, 4; consultations, 3; changes directed, 1; certificates issued, 4; visit to examine construction, 3.

Relating to Existing Buildings.

Theatres: inspections, 105; visits, 66.

Public Halls: inspections, 40; visits, 35.

Special Halls: inspections, 19; visits, 13.

Other Halls: inspections, 32; visits, 92; certificates issued, 32.

Churches: inspections, 1; visits, 23.

Schools: inspections, 8; visits, 43; inspection of heating and ventilation, 1.

Hotels, Lodging and Boarding Houses: inspections, 46; visits, 47; certificates issued, 31.

Apartment and Tenement Houses: visits, 2.

Manufacturing Buildings: inspections, 2; visits, 8.

Mercantile Buildings: visits, 25.

Other Buildings: visits, 20.

Orders issued: written, 30; verbal, 74.

Orders complied with: written, 38; verbal, 85.

Orders in process of compliance: written, 38; verbal, 8.

Inspections for special permits for entertainments, 44; approved, 44.

Moving-picture machine booths inspected, 2; approved, 2.
Moving-picture machines inspected, 4; approved, 4.
Moving-picture machines operators' licenses renewed, 36.
Visited places of entertainment for investigation, 14.
Forty-six written orders and 19 verbal orders, from previous year, complied with.

REPORT OF INSPECTOR ARTHUR F. ROACH.¹

Relating to the Erection of Buildings.

Theatres: consultations, 7; changes directed, 4; visit to examine changes, 7; visit to examine construction, 5.
Public Halls: consultations, 10; changes directed, 12; visit to examine changes, 6; visit to examine construction, 11.
Special Halls: visit to examine changes, 1; visit to examine construction, 7.
Other Halls: consultations, 4; changes directed, 2; visit to examine construction, 18.
Churches: consultations, 2; changes directed, 2; visit to examine construction, 3.
Schools: consultations, 7; changes directed, 12; visit to examine construction, 10.
Hotels, Lodging and Boarding Houses: consultations, 5; changes directed, 5; visit to examine construction, 6. ⁶
Apartment and Tenement Houses: visit to examine construction, 94.
Manufacturing Buildings: consultations, 2; changes directed, 2; visit to examine construction, 3.
Mercantile Buildings: visit to examine construction, 1.

Relating to Existing Buildings.

Theatres: inspections, 133; visits, 11.
Public Halls: inspections, 54; visits, 23.
Special Halls: inspections, 27; visits, 8.
Other Halls: inspections, 30; visits, 49; certificates issued, 22.
Churches: visits, 3.
Schools: inspections, 1; visits, 31.
Hotels, Lodging and Boarding Houses: inspections, 61; visits, 30; certificates issued, 60.
Apartment and Tenement Houses: visits, 5.
Manufacturing Buildings: visits, 8.
Mercantile Buildings: visits, 3.
Other Buildings, visits, 5.

¹ Assisted as a factory inspector during part of the year.

Miscellaneous Duties.

Orders issued: written, 28; verbal, 76.
 Orders complied with: written, 26; verbal, 76.
 Orders in process of compliance: written, 2.
 Inspections for special permits for entertainments, 2; approved, 2.
 Moving-picture machine booths inspected, 7; approved, 7.
 Moving-picture machines inspected, 12; approved, 12.
 Moving-picture machine operators' licenses renewed, 17.
 Cases and complaints investigated, 16.
 Visited places of entertainment for investigation, 48.
 Special duty during strikes: at Barre, 3 days.

 REPORT OF INSPECTOR JOHN F. CASEY.¹
Relating to the Erection of Buildings.

Theatres: plans submitted, 1; plans filed, 1; consultations, 19; certificates issued, 1; visit to examine changes, 4; visit to examine construction, 26.
 Public Halls: consultations, 3; visit to examine changes, 2; visit to examine construction, 8.
 Special Halls: consultations, 1; visit to examine changes, 1; visit to examine construction, 4.
 Other Halls: plans submitted, 1; plans filed, 1; consultations, 3; certificates issued, 1; visit to examine changes, 3; visit to examine construction, 12.
 Churches: plans submitted, 2; plans filed, 2; consultations, 1; changes directed, 2; certificates issued, 2; visit to examine changes, 1; visit to examine construction, 13.
 Schools: plans submitted, 4; plans filed, 4; consultations, 7; changes directed, 2; certificates issued, 4; visit to examine changes, 10; visit to examine construction, 10.
 Hotels, Lodging and Boarding Houses: plans submitted, 2; plans filed, 2; consultations, 3; changes directed, 2; certificates issued, 2; visit to examine changes, 4; visit to examine construction, 1.
 Apartment and Tenement Houses: plans submitted, 6; plans filed, 7; consultations, 12; changes directed, 3; certificates issued, 7; visit to examine changes, 5; visit to examine construction, 26.
 Manufacturing Buildings: plans submitted, 4; plans filed, 4; changes directed, 1; certificates issued, 4; visit to examine construction, 5.
 Mercantile Buildings: plans submitted, 2; plans filed, 2; consultations, 1; changes directed, 1; certificates issued, 2; visit to examine construction, 29.

¹ Transferred to building inspection May 27, 1912.

Other Buildings: plans submitted, 4; plans filed, 4; changes directed, 3; certificates issued, 4; visit to examine changes, 3; visit to examine construction, 10.

Relating to Existing Buildings.

Theatres: inspections, 54; visits, 19.
Public Halls: inspections, 19; visits, 13.
Special Halls: inspections, 5; visits, 6.
Other Halls: inspections, 37; visits, 28; certificates issued, 22.
Churches: inspections, 11; visits, 6.
Schools: inspections, 2; visits, 2.
Hotels, Lodging and Boarding Houses: inspections, 19; visits, 21; certificates issued, 48.
Apartment and Tenement Houses: inspections, 1; visits, 5.
Manufacturing Buildings: visits, 6.
Mercantile Buildings: inspections, 2; visits, 3.
Other Buildings: visits, 34.

Miscellaneous Duties.

Orders issued: written, 32; verbal, 34.
Orders complied with: written, 15; verbal, 27.
Orders in process of compliance: written, 17; verbal, 7.
Moving-picture machine booths inspected, 3; approved, 3.
Moving-picture machines inspected, 5; approved, 5.
Applicants to operate moving-picture machines examined, 2.
Applicants to operate moving-picture machines rejected, 2.
Elevators inspected, 2; approved, 2.

REPORT OF INSPECTOR HARRY ATKINSON.¹

Relating to Existing Buildings.

Theatres: inspections, 1; visits, 22.
Public Halls: inspections, 7; visits, 62.
Special Halls: inspections, 1.
Other Halls: inspections, 5.
Hotels, Lodging and Boarding Houses: inspections, 2.
Mercantile Buildings: visits, 12.
Other Buildings: inspections, 1; visits, 14.

Miscellaneous Duties.

Orders issued: verbal, 3.
Orders complied with: verbal, 3.
Inspections for special permits for entertainments, 1; approved, 1.

¹ Transferred to building inspection May 27, 1912.

Moving-picture machine booths inspected, 8; approved, 6.
 Moving-picture machines inspected, 20; approved, 17.
 Moving-picture machine operators' licenses renewed, 48.
 Cases and complaints investigated, 1; reported, 1.
 Special duty during strikes: at Lawrence, 2 days.
 Days censoring cinematograph films for Lord's day entertainments,
 57.

REPORT OF INSPECTOR FREDERICK W. MERRIAM.¹

Relating to the Erection of Buildings.

Public Halls: consultations, 2.
 Schools: changes directed, 4.
 Manufacturing Buildings: consultations, 2; visit to examine changes,
 1.
 Other Buildings: consultations, 4.

Relating to Existing Buildings.

Theatres: visits, 4.
 Public Halls: visits, 6.
 Other Halls: visits, 2.
 Churches: visits, 2; inspection of heating and ventilation, 4.
 Schools: visits, 1.
 Manufacturing Buildings: visits, 5.
 Other Buildings: visits, 1.

Miscellaneous Duties.

Inspections for special permits for entertainments, 1.
 Moving-picture machine operators' licenses renewed, 3.
 Cases and complaints investigated, 5; reported, 5.
 Acting as deputy chief, inspection department, nineteen days.

¹ Appointed Deputy Chief, Inspection Department, Feb. 15, 1912.

ASSIGNMENTS OF DISTRICTS, FACTORY INSPECTION.

The following assignments of districts are now in force: —

INSPECTORS OF FACTORIES.

DISTRICT No. 1.

ANGUS H. McDONALD, *Factory Inspector.*

Office, 12 Kinsman Block, Salem.

BEVERLY	LYNN	Rockport
Boxford	Lynnfield	Rowley
Danvers	Manchester	SALEM
Essex	Marblehead	Saugus
GLOUCESTER	Middleton	Swampscott
Hamilton	Nahant	Topsfield
Ipswich	Peabody	Wenham

DISTRICT No. 2.

JEREMIAH J. CAREY, *Factory Inspector.*

Office, Central Block, Lowell.

Acton	Dunstable	Salisbury
Amesbury	Georgetown	Shirley
Ashby	Groton	Townsend
Ayer	Groveland	Tyngsborough
Bedford	Littleton	Westford
Boxborough	Merrimac	West Newbury
Burlington	Newbury	Wilmington
Carlisle	North Reading	
Chelmsford	Pepperell	

For Inspection of Mercantile and Other Establishments, not including Factories.

Andover	LAWRENCE	North Andover
Billerica	LOWELL	Tewksbury
Dracut	Methuen	
HAVERHILL	NEWBURYPORT	

MARY E. HALLEY, *Factory Inspector.*

Special Duty in District 2.

Office, Central Block, Lowell.

For Inspection of Factories only.

Andover	LAWRENCE	North Andover
Billerica	LOWELL	Tewksbury
Dracut	Methuen	
HAVERHILL	NEWBURYPORT	

DISTRICT No. 3.

ELMER LEWIS, *Factory Inspector.*

Office, 2 State House, Boston.

Ashland	Hudson	SOMERVILLE
Belmont	Lexington	Stow
CAMBRIDGE	Lincoln	Sudbury
Concord	MARLBOROUGH	WALTHAM
Framingham	Maynard	Wayland
Holliston	Natick	Weston
Hopkinton	Sherborn	

DISTRICT No. 4.

ELMER I. CHRISTENSON, *Factory Inspector.*

Office, 2 State House, Boston.

Arlington	MELROSE	Winchester
EVERETT	Reading	WOBURN
MALDEN	Stoneham	
MEDFORD	Wakefield	

DISTRICT No. 5.

EVERETT E. RYAN, *Factory Inspector.*

Office, 2 State House, Boston.

BOSTON, commencing at the center of Tremont Street at School Street, center of Tremont and Court streets to Hanover Street, center of Hanover Street to Chelsea Ferry, East Boston to the harbor line, center of Fort Point Channel to Oliver Street; center of Oliver, Water and School streets to Tremont Street; also Chelsea, Revere and Winthrop.

DISTRICT No. 6.

CHARLES S. CLERKE, *Factory Inspector.*

Office, 2 State House, Boston.

BOSTON, commencing at the center of Hanover Street at Court Street, center of Hanover Street to Chelsea Ferry, along the water front to center of Charles River, to West Boston Bridge, to Cambridge Street, center of Cambridge and Court streets to Hanover Street; also Charlestown.

DISTRICT No. 7.

ARTHUR J. VAUGHAN, *Factory Inspector.*

Office, 2 State House, Boston.

BOSTON, commencing at the center of Tremont Street at Pleasant Street, center of Tremont Street to School Street, center of School and Water streets to Oliver Street, center of Oliver Street to Fort Point Channel, center of Fort Point Channel to Broadway bridge, center of Broadway and Pleasant Street to Tremont Street; also Canton, Hyde Park and Sharon.

DISTRICT No. 8.

EDWARD GRANT, *Factory Inspector.*

Office, 2 State House, Boston.

BOSTON, southerly of the following line: commencing at Brookline line, center of Huntington Avenue to Tremont Street, center of Tremont Street to Pleasant Street, center of Pleasant Street to Broadway, center of Broadway to Fort Point Channel; also South Boston, Dorchester, New Dorchester, Mattapan, Roxbury, Jamaica Plain, Roslindale and West Roxbury.
Dorchester Bay, center of Neponset River, Hyde Park line, Charles River and Brookline line, being the boundaries on the easterly, southerly and westerly sides.

DISTRICT No. 9.

JOSEPH F. COBB, *Factory Inspector.*

Office, 2 State House, Boston.

BOSTON, commencing at Brookline line at Huntington Avenue, center of Huntington Avenue to Tremont Street, center of Tremont Street to Court Street, center of Court Street to Cambridge Street, center of Cambridge Street to Charles River; all of Boston north and west of this line excepting Charlestown; also Brookline, Needham, Newton, Watertown and Wellesley.

DISTRICT No. 10.ANDREW M. GOFF, *Factory Inspector.*

Office, 2 State House, Boston.

Abington	Hanover	Plainville
Avon	Hanson	Plymouth
Bellingham	Hingham	Plympton
Braintree	Holbrook	QUINCY
Bridgewater	Hull	Randolph
BROCKTON	Kingston	Rockland
Carver	Marshfield	Scituate
Cohasset	Medfield	Stoughton
Dedham	Medway	Walpole
Dover	Millis	West Bridgewater
Duxbury	Milton	Westwood
East Bridgewater	Norfolk	Weymouth
Foxborough	Norwell	Whitman
Franklin	Norwood	Wrentham
Halifax	Pembroke	

DISTRICT No. 11.JOHN R. DEXTER, *Factory Inspector.*

Office, Hudner Building, Fall River.

Barnstable	Gosnold	Sandwich
Bourne	Harwich	Seekonk
Brewster	Lakeville	Somerset
Chatham	Marion	Swansea
Chilmark	Mashpee	Tisbury
Dartmouth	Mattapoissett	Truro
Dennis	Middleborough	Wareham
Eastham	Nantucket	Wellfleet
Edgartown	Oak Bluffs	Westport
FALL RIVER	Orleans	West Tisbury
Falmouth	Provincetown	Yarmouth
Freetown	Rehoboth	
Gay Head	Rochester	

DISTRICT No. 12.WILLIAM H. CAIRNS, *Factory Inspector.*

Office, Hudner Building, Fall River.

Aeushnet	Easton	North Attleborough
Attleborough	Fairhaven	Norton
Berkley	Mansfield	Raynham
Dighton	NEW BEDFORD	Taunton

DISTRICT No. 13.CHARLES A. DAM, *Factory Inspector.*

Office, 476 Main Street, Worcester.

Ashburnham	Holden	Royalston
Athol	Hopedale	Rutland
Auburn	Hubbardston	Shrewsbury
Barre	Lancaster	Southborough
Berlin	Leicester	Southbridge
Blackstone	Leominster	Sterling
Bolton	Lunenburg	Sutton
Boylston	Mendon	Templeton
Charlton	Milford	Upton
Clinton	Millbury	Uxbridge
Dana	New Braintree	Webster
Douglas	Northborough	Westborough
Dudley	Northbridge	West Boylston
FITCHBURG	Oakham	Westminster
Gardner	Oxford	Winchendon
Grafton	Petersham	WORCESTER
Hardwick	Phillipston	
Harvard	Princeton	

DISTRICT No. 14.JAMES R. HOWES, *Factory Inspector.*

Office, 21 Besse Place, Springfield.

Agawam	Chesterfield	Goshen
Amherst	CHICOPEE	Granby
Belchertown	Cummington	Granville
Blandford	Easthampton	Greenwich
Brimfield	East Longmeadow	Hadley
Chester	Enfield	Hampden

Hatfield	Palmer	Tolland
Holland	Pelham	Wales
HOLYOKE	Plainfield	Ware
Huntington	Prescott	Westfield
Longmeadow	Russell	Westhampton
Ludlow	Southampton	West Springfield
Middlefield	South Hadley	Wilbraham
Monson	Southwick	Williamsburg
Montgomery	SPRINGFIELD	Worthington
NORTHAMPTON		

DISTRICT No. 15.SYDNEY H. CLIFFE, *Factory Inspector.*

Office, Kimbell Block, North Adams.

Adams	Hawley	Peru
Alford	Heath	PITTSFIELD
Ashfield	Hinsdale	Richmond
Becket	Lanesborough	Rowe
Bernardston	Lee	Sandisfield
Buckland	Lenox	Savoy
Charlemont	Leverett	Sheffield
Cheshire	Leyden	Shelburne
Clarksburg	Monroe	Shutesbury
Colrain	Montague	Stockbridge
Conway	Monterey	Sunderland
Dalton	Mount Washington	Tyringham
Deerfield	New Ashford	Warwick
Egremont	New Marlborough	Washington
Erving	New Salem	Wendell
Florida	NORTH ADAMS	West Stockbridge
Gill	Northfield	Whately
Great Barrington	Orange	Williamstown
Greenfield	Otis	Windsor
Hancock		

MARY A. NASON, *Inspector, Special Duty.*

Office, 2 State House, Boston.

In connection with other inspection duties, is detailed for the enforcement of the laws relating to the employment of women and children in workshops and mercantile establishments.

SPECIAL DUTY.ARTHUR F. ROACH, *Factory Inspector.*

Office, 21 Besse Place, Springfield.

Brookfield	Spencer	Warren
North Brookfield	Sturbridge	West Brookfield
Paxton		

REPORTS OF INSPECTORS OF FACTORIES.**REPORT OF INSPECTOR ANGUS H. McDONALD.**

Factories: inspections, 384; visits, 373; males employed, 23,618; females employed, 9,389; males between fourteen and sixteen years, 488; females between fourteen and sixteen years, 417; illiterate minors, 267; total number employed, 33,007.

Mechanical Establishments: inspections, 116; visits, 56; males employed, 1,176; females employed, 483; males between fourteen and sixteen years, 11; females between fourteen and sixteen years, 22; total number employed, 1,659.

Manufacturing Establishments (no power used): inspections, 18; visits, 8; males employed, 130; females employed, 31; total number employed, 161.

Workshops (no power used): inspections, 49; visits, 23; males employed, 84; females employed, 290; males between fourteen and sixteen years, 1; total number employed, 374.

Mercantile Establishments (trade): inspections, 318; visits, 147; males employed, 1,901; females employed, 2,226; males between fourteen and sixteen years, 59; females between fourteen and sixteen years, 59; total number employed, 4,127.

Mercantile Establishments (restaurants): inspections, 92; visits, 45; males employed, 450; females employed, 546; total number employed, 996.

Other Establishments: visits, 400.

Orders issued: written, 146; verbal, 310.

Orders complied with: written, 130; verbal, 282.

Orders in process of compliance: written, 16; verbal, 28.

Complaints investigated, 99.

Accidents investigated, 31.

Places of entertainment visited for investigation, 2.

Elevators inspected, 170; approved, 45; placarded, 5.

Inspection of industrial buildings or parts thereof, 113.

Orders issued on same: written, 90; verbal, 8.

Same complied with: written, 83; verbal, 4.

Same in process of compliance: written, 7; verbal, 4.

Certificates issued on industrial buildings, 15.

Prosecutions made, 22; fines and costs, \$785.

Special duty during strikes: at Lawrence, four days; Barre, three days.

Assisted on 8 prosecutions.

REPORT OF INSPECTOR JEREMIAH J. CAREY.

Mechanical Establishments: inspections, 81; visits, 28; males employed, 567; females employed, 380; males between fourteen and sixteen years, 40; females between fourteen and sixteen years, 17; total number employed, 947.

Manufacturing Establishments (no power used): inspections, 428; visits, 286; males employed, 18,001; females employed, 10,789; males between fourteen and sixteen years, 577; females between fourteen and sixteen years, 1,007; illiterate minors, 104; total number employed, 28,790.

Workshops (no power used): inspections, 68; visits, 27; males employed, 305; females employed, 62; males between fourteen and sixteen years, 15; females between fourteen and sixteen years, 2; illiterate minors, 1; total number employed, 367.

Mercantile Establishments (trade): inspections, 449; visits, 147; males employed, 1,321; females employed, 865; males between fourteen and sixteen years, 148; females between fourteen and sixteen years, 18; illiterate minors, 1; total number employed, 2,186.

Mercantile establishments (restaurants): inspections, 23; visits, 13; males employed, 12; females employed, 19; total number employed, 31.

Other Establishments: inspections, 6; visits, 72; males employed, 38; males between fourteen and sixteen years, 1; total number employed, 38.

Orders issued: written, 75; verbal, 649.

Orders complied with: written, 65; verbal, 640.

Orders in process of compliance: written, 10; verbal, 14.

Complaints investigated, 27.

Accidents investigated, 55.

Moving-picture machine operators' licenses renewed, 10.

Elevators inspected, 155; approved, 155.

Inspection of industrial buildings or parts thereof, 159.

Orders issued on same: written, 60; verbal, 40.

Same complied with: written, 58; verbal, 34.

Same in process of compliance: written, 2; verbal, 6.

Prosecutions made, 10; fines and costs, \$111.20.

Special duty during strikes: at Lawrence, eighteen days; Barre, three days.

Assisted on 10 prosecutions.

REPORT OF INSPECTOR MARY E. HALLEY.

Factories: inspections, 140; visits, 25; males employed, 29,636; females employed, 20,622; males between fourteen and sixteen years, 1,309; females between fourteen and sixteen years, 1,495; illiterate minors, 256; total number employed, 50,258.

Mechanical Establishments: inspections, 12; males employed, 51; females employed, 130; males between fourteen and sixteen years, 1; females between fourteen and sixteen years, 3; total number employed, 181.

Mercantile Establishments (trade): visits, 1.

Mercantile Establishments (restaurants): visits, 1.

Other Establishments: visits, 16.

Orders issued: written, 60; verbal, 41.

Orders complied with: written, 52; verbal, 36.

Orders in process of compliance: written, 8; verbal, 5.

Complaints investigated, 7.

Accidents investigated, 3.

Prosecutions made, 5; fines and costs, \$60.

REPORT OF INSPECTOR ELMER LEWIS.

Factories: inspections, 418; visits, 26; males employed, 21,842; females employed, 8,628; males between fourteen and sixteen years, 422; females between fourteen and sixteen years, 489; illiterate minors, 175; total number employed, 30,470.

Mechanical Establishments: inspections, 29; males employed, 194; females employed, 449; males between fourteen and sixteen years, 5; females between fourteen and sixteen years, 10; total number employed, 643.

Manufacturing Establishments (no power used): inspections, 80; males employed, 431; females employed, 51; males between fourteen and sixteen years, 1; total number employed, 482.

Workshops (no power used): inspections, 132; males employed, 401; females employed, 66; illiterate minors, 1; total number employed, 467.

Mercantile Establishments (trade): inspections, 746; visits, 26; males employed, 2,715; females employed, 890; males between fourteen and sixteen years, 10; females between fourteen and sixteen years, 4; total number employed, 3,605.

Mercantile Establishments (restaurants): inspections, 105; visits, 9; males employed, 308; females employed, 315; males between fourteen and sixteen years, 13; total number employed, 623.

Other Establishments: visits, 32.

Orders issued: verbal, 255.

Orders complied with: verbal, 209.
 Orders in process of compliance: verbal, 46.
 Complaints investigated, 22.
 Accidents investigated, 11.
 Moving-picture machines inspected, 2: approved, 2.
 Moving-picture machine operators' licenses renewed, 49.
 Applicants to operate moving-picture machines examined, 28.
 Applicants to operate moving-picture machines licensed, 4.
 Applicants to operate moving-picture machines rejected, 24.
 Number of sittings on Board of Appeal for examination, 26.
 Elevators inspected, 157; approved, 157.
 Prosecutions made, 1.

REPORT OF INSPECTOR ARLO S. ATHERTON.¹

Factories: inspections, 105; visits, 40; males employed, 4,967; females employed, 2,893; males between fourteen and sixteen years, 108; females between fourteen and sixteen years, 67; illiterate minors, 27; total number employed, 7,860.
 Mechanical Establishments: inspections, 21; visits, 6; males employed, 128; females employed, 226; total number employed, 354.
 Manufacturing Establishments (no power used): inspections, 56; visits, 22; males employed, 217; females employed, 100; males between fourteen and sixteen years, 1; total number employed, 317.
 Workshops (no power used): inspections, 26; visits, 6; males employed, 18; females employed, 64; total number employed, 82.
 Mercantile Establishments (trade): inspections, 96; visits, 54; males employed, 325; females employed, 428; males between fourteen and sixteen years, 1; females between fourteen and sixteen years, 7; total number employed, 753.
 Mercantile Establishments (restaurants): inspections, 20; visits, 7; males employed, 33; females employed, 72; total number employed, 105.
 Other Establishments: visits, 6.
 Orders issued: written, 2; verbal, 113.
 Orders complied with: written, 2; verbal, 120.
 Complaints investigated, 2.
 Accidents investigated, 4.
 Moving-picture machine booths inspected, 1; approved, 1.
 Moving-picture machine operators' licenses renewed, 26.
 Number of sittings on Board of Appeal for examination, 1.
 Elevators inspected, 64; approved, 64.
 Days censoring cinematograph films for Lord's-day entertainments, 44.

¹ Retired March 31, 1912.

REPORT OF INSPECTOR ELMER I. CHRISTENSON.¹

Factories: inspections, 123; visits, 20; males employed, 4,574; females employed, 2,039; males between fourteen and sixteen years, 104; females between fourteen and sixteen years, 50; illiterate minors, 44; total number employed, 6,613.

Mechanical Establishments: inspections, 19; visits, 3; males employed, 173; females employed, 271; males between fourteen and sixteen years, 16; females between fourteen and sixteen years, 9; total number employed, 444.

Manufacturing Establishments (no power used): inspections, 20; visits, 6; males employed, 145; females employed, 17; total number employed, 162.

Workshops (no power used): inspections, 23; visits, 1; males employed, 48; females employed, 4; females between fourteen and sixteen years, 1; total number employed, 52.

Mercantile Establishments (trade): inspections, 174; visits, 69; males employed, 402; females employed, 200; males between fourteen and sixteen years, 13; total number employed, 602.

Mercantile Establishments (restaurants): inspections, 29; visits, 12; males employed, 41; females employed, 56; total number employed, 97.

Orders issued: written, 1; verbal, 161.

Orders complied with: written, 1; verbal, 146.

Orders in process of compliance: verbal, 15.

Complaints investigated, 2.

Number of sittings on Board of Appeal for examination, 1.

Elevators inspected, 78; approved, 78.

Special duty during strikes: at Lawrence, four days.

REPORT OF INSPECTOR EVERETT E. RYAN.

Factories: inspections, 265; visits, 81; males employed, 6,409; females employed, 2,402; males between fourteen and sixteen years, 169; females between fourteen and sixteen years, 103; illiterate minors, 147; total number employed, 8,811.

Mechanical Establishments: inspections, 5; visits, 1; males employed, 97; females employed, 179; total number employed, 276.

Manufacturing Establishments (no power used): inspections, 112; visits, 11; males employed, 417; females employed, 136; males between fourteen and sixteen years, 8; females between fourteen and sixteen years, 2; illiterate minors, 2; total number employed, 553.

¹ Appointed July 8, 1912.

Workshops (no power used) : inspections, 100; visits, 13; males employed, 387; females employed, 55; males between fourteen and sixteen years, 3; females between fourteen and sixteen years, 2; illiterate minors, 7; total number employed, 442.

Mercantile Establishments (trade) : inspections, 270; visits, 36; males employed, 1,141; females employed, 383; males between fourteen and sixteen years, 34; females between fourteen and sixteen years, 4; total number employed, 1,524.

Mercantile Establishments (restaurants) : inspections, 64; visits, 28; males employed, 821; females employed, 747; males between fourteen and sixteen years, 2; illiterate minors, 22; total number employed, 1,568.

Other Establishments : visits, 220.

Orders issued : written, 9; verbal, 110.

Orders complied with : written, 8; verbal, 109.

Orders in process of compliance : written, 1; verbal, 7.

Complaints investigated, 22.

Accidents investigated, 12.

Moving-picture machines inspected, 17; approved, 17.

Moving-picture machine booths inspected, 5; approved, 5.

Moving-picture machine operators' licenses renewed, 99.

Applicants to operate moving-picture machines examined, 159.

Applicants to operate moving-picture machines licensed, 39.

Applicants to operate moving-picture machines rejected, 120.

Number of sittings on Board of Appeal for examination, 23.

Places of entertainment visited for investigation, 11.

Elevators inspected, 51.

Prosecutions made, 4.

REPORT OF INSPECTOR CHARLES S. CLERKE.

Factories : inspections, 649; visits, 298; males employed, 10,977; females employed, 6,755; males between fourteen and sixteen years, 199; females between fourteen and sixteen years, 576; illiterate minors, 121; total number employed, 17,732.

Mechanical Establishments : inspections, 140; visits, 41; males employed, 1,205; females employed, 319; males between fourteen and sixteen years, 3; females between fourteen and sixteen years, 7; illiterate minors, 4; total number employed, 1,524.

Manufacturing Establishments (no power used) : inspections, 89; visits, 21; males employed, 2,052; females employed, 573; males between fourteen and sixteen years, 3; females between fourteen and sixteen years, 3; total number employed, 2,625.

Workshops (no power used): inspections, 57; visits, 28; males employed, 314; females employed, 94; males between fourteen and sixteen years, 5; females between fourteen and sixteen years, 8; total number employed, 408.

Mercantile Establishments (trade): inspections, 478; visits, 200; males employed, 3,363; females employed, 1,171; males between fourteen and sixteen years, 36; females between fourteen and sixteen years, 16; total number employed, 4,534.

Mercantile Establishments (restaurants): inspections, 142; visits, 50; males employed, 1,088; females employed, 515; females between fourteen and sixteen years, 1; illiterate minors, 1; total number employed, 1,603.

Orders issued: verbal, 822.

Orders complied with: verbal, 809.

Orders in process of compliance: verbal, 13.

Complaints investigated, 15.

Accidents investigated, 8.

Moving-picture machines inspected, 2; approved, 1.

Moving-picture machine operators' licenses renewed, 21.

Applicants to operate moving-picture machines examined, 10.

Applicants to operate moving-picture machines licensed, 5.

Applicants to operate moving-picture machines rejected, 5.

Number of sittings on Board of Appeal for examination, 28.

Places of entertainment visited for investigation, 8.

Prosecutions made, 4; fines and costs, \$25.

REPORT OF INSPECTOR JOHN E. GRIFFIN.¹

Factories: inspections, 26; visits, 15; males employed, 314; females employed, 516; males between fourteen and sixteen years, 15; females between fourteen and sixteen years, 5; total number employed, 830.

Mechanical Establishments: inspections, 30; visits, 49; males employed, 206; females employed, 55; males between fourteen and sixteen years, 5; total number employed, 261.

Manufacturing Establishments (no power used): visits, 3.

Workshops (no power used): inspections, 70; visits, 32; males employed, 361; females employed, 940; males between fourteen and sixteen years, 4; females between fourteen and sixteen years, 4; total number employed, 1,301.

Mercantile Establishments (trade): inspections, 53; visits, 167; males employed, 4,282; females employed, 6,346; males between fourteen and sixteen years, 168; females between fourteen and sixteen years, 393; total number employed, 10,628.

¹ Retired March 31, 1912.

Mercantile Establishments (restaurants): inspections, 2; visits, 11; males employed, 47; females employed, 17; total number employed, 64.

Other Establishments: visits, 7.

Orders issued: written, 1; verbal, 52.

Orders complied with: verbal, 264.

Orders in process of compliance: written, 1.

Complaints investigated, 24.

Accidents investigated, 3.

Moving-picture machines inspected, 11; approved, 11.

Moving-picture machine booths inspected, 3; approved, 3.

Moving-picture machine operators' licenses renewed, 12.

Applicants to operate moving-picture machines examined, 33.

Applicants to operate moving-picture machines licensed, 4.

Applicants to operate moving-picture machines rejected, 29.

Places of entertainment visited for investigation, 72.

Elevators inspected, 11; approved, 10.

Prosecutions, 1.

Two hundred and twelve verbal orders complied with were issued previous year.

REPORT OF INSPECTOR ARTHUR J. VAUGHAN.¹

Factories: inspections, 446; visits, 111; males employed, 5,975; females employed, 6,824; males between fourteen and sixteen years, 205; females between fourteen and sixteen years, 92; illiterate minors, 141; total number employed, 12,799.

Mechanical establishments: inspections, 53; visits, 1; males employed, 295; females employed, 258; males between fourteen and sixteen years, 19; females between fourteen and sixteen years, 3; total number employed, 553.

Manufacturing Establishments (no power used): inspections, 132; visits, 12; males employed, 732; females employed, 428; males between fourteen and sixteen years, 25; females between fourteen and sixteen years, 3; total number employed, 1,160.

Workshops (no power used): inspections, 141; visits, 8; males employed, 477; females employed, 1,355; males between fourteen and sixteen years, 14; females between fourteen and sixteen years, 13; total number employed, 1,832.

Mercantile Establishments (trade) inspections, 559; visits, 80; males employed, 11,339; females employed, 14,854; males between fourteen and sixteen years, 441; females between fourteen and sixteen years, 594; illiterate minors, 1; total number employed, 26,193.

¹ Appointed April 10, 1912.

Mercantile Establishments (restaurants): inspections, 113; visits, 10; males employed, 1,868; females employed, 1,618; males between fourteen and sixteen years, 1; females between fourteen and sixteen years, 1; total number employed, 3,486.

Other Establishments: visits, 41.

Orders issued: verbal, 350.

Orders complied with: verbal, 350.

Complaints investigated, 16.

Accidents investigated, 4.

Moving-picture machine operators' licenses renewed, 6.

Applicants to operate moving-picture machines examined, 6.

Applicants to operate moving-picture machines rejected, 6.

Number of sittings on Board of Appeal for examination, 9.

Elevators inspected, 6; approved, 6.

Inspection of industrial buildings or parts thereof, 9.

Orders issued on industrial buildings: verbal, 9.

Orders on industrial buildings complied with: verbal, 9.

REPORT OF INSPECTOR HARRY ATKINSON.¹

Factories: inspections, 101; visits, 66; males employed, 2,681; females employed, 1,176; males between fourteen and sixteen years, 20; females between fourteen and sixteen years, 64; illiterate minors, 11; total number employed, 3,857.

Mechanical Establishments: inspections, 18; visits, 29; males employed, 229; females employed, 266; males between fourteen and sixteen years, 1; females between fourteen and sixteen years, 9; total number employed, 495.

Manufacturing Establishments (no power used): inspections, 5; visits, 8; males employed, 56; females employed, 14; males between fourteen and sixteen years, 1; total number employed, 70.

Workshops (no power used): inspections, 17; visits, 7; males employed, 31; females employed, 13; males between fourteen and sixteen years, 1; females between fourteen and sixteen years, 1; illiterate minors, 3; total number employed, 44.

Mercantile Establishments (trade): inspections, 181; visits, 16; males employed, 553; females employed, 405; males between fourteen and sixteen years, 17; females between fourteen and sixteen years, 17; illiterate minors, 3; total number employed, 958.

Mercantile Establishments (restaurants): inspections, 29; visits, 16; males employed, 207; females employed, 104; total number employed, 311.

Other Establishments: inspections, 7; visits, 80.

Orders issued: written, 2 verbal, 83.

¹ Transferred to building inspection May 27, 1912.

Orders complied with: written, 2; verbal, 74.
 Orders in process of compliance: verbal, 9.
 Complaints investigated, 30.
 Accidents investigated, 5.
 Moving-picture machines inspected, 22; approved, 22.
 Moving-picture machine booths inspected, 12; approved, 12.
 Moving-picture machine operators' licenses renewed, 36.
 Applicants to operate moving-picture machines examined, 95.
 Applicants to operate moving-picture machines licensed, 16.
 Applicants to operate moving-picture machines rejected, 79.
 Number of sittings on Board of Appeal for examination, 15.
 Places of entertainment visited for investigation, 108.
 Prosecutions made, 3; fines and costs, \$100.60.

REPORT OF INSPECTOR EDWARD GRANT.¹

Factories: inspections, 142; visits, 17; males employed, 10,151; females employed, 6,430; males between fourteen and sixteen years, 368; females between fourteen and sixteen years, 599; illiterate minors, 118; total number employed, 16,581.
 Mechanical Establishments: inspections, 20; visits, 5; males employed, 314; females employed, 674; males between fourteen and sixteen years, 1; females between fourteen and sixteen years, 20; illiterate minors, 2; total number employed, 988.
 Manufacturing Establishments (no power used): inspections, 14; males employed, 86; females employed, 18; females between fourteen and sixteen years, 1; total number employed, 104.
 Workshops (no power used): inspections, 3; males employed, 6; females employed, 5; total number employed, 11.
 Mercantile Establishments (trade): inspections, 242; visits, 12; males employed, 817; females employed, 781; males between fourteen and sixteen years, 26; females between fourteen and sixteen years, 31; total number employed, 1,598.
 Mercantile Establishments (restaurants): inspections, 82; visits, 14; males employed, 340; females employed, 221; females between fourteen and sixteen years, 2; total number employed, 561.
 Orders issued: verbal, 246.
 Orders complied with: verbal, 222.
 Orders in process of compliance: verbal, 24.
 Complaints investigated, 11.
 Accidents investigated, 1.
 Moving-picture machine operators' licenses renewed, 8.
 Applicants to operate moving-picture machines examined, 6.
 Applicants to operate moving-picture machines licensed, 2.

¹ Appointed July 8, 1912.

Applicants to operate moving-picture machines rejected, 4.
Number of sittings on Board of Appeal for examination, 2.
Prosecutions made, 8; fines and costs, \$100.

REPORT OF INSPECTOR JOSEPH F. COBB.

Factories: inspections, 138; visits, 27; males employed, 5,708; females employed, 2,972; males between fourteen and sixteen years, 94; females between fourteen and sixteen years, 98; illiterate minors, 84; total number employed, 8,680.

Mechanical Establishments: inspections, 17; visits, 9; males employed, 196; females employed, 596; males between fourteen and sixteen years, 2; females between fourteen and sixteen years, 5; total number employed, 792.

Manufacturing Establishments (no power used): inspections, 21; visits, 2; males employed, 251; females employed, 29; males between fourteen and sixteen years, 8; illiterate minors, 2; total number employed, 280.

Workshops (no power used): inspections, 180; visits, 25; males employed, 1,292; females employed, 323; males between fourteen and sixteen years, 14; females between fourteen and sixteen years, 7; illiterate minors, 27; total number employed, 1,615.

Mercantile Establishments (trade): inspections, 290; visits, 124; males employed, 1,780; females employed, 679; males between fourteen and sixteen years, 37; females between fourteen and sixteen years, 5; illiterate minors, 15; total number employed, 2,459.

Mercantile Establishments (restaurants): inspections, 85; visits, 77; males employed, 931; females employed, 497; males between fourteen and sixteen years, 2; females between fourteen and sixteen years, 5; illiterate minors, 19; total number employed, 1,428.

Other Establishments: visits, 305.

Orders issued: written, 4; verbal, 246.

Orders complied with: written, 3; verbal, 193.

Orders in process of compliance: written, 1; verbal, 53.

Complaints investigated, 61.

Accidents investigated, 5.

Moving-picture machines inspected, 7; approved, 7.

Moving-picture machine booths inspected, 4; approved, 4.

Moving-picture machine operators' licenses renewed, 15.

Applicants to operate moving-picture machines examined, 218.

Applicants to operate moving-picture machines licensed, 74.

Applicants to operate moving-picture machines rejected, 144.

Applicants to operate moving-picture machines appealed, 114.

Number of sittings on Board of Appeal for examination, 19.

Places of entertainment visited for investigation, 217.

Elevators inspected, 41; approved, 41.

Inspections of industrial buildings or parts thereof, 231.

Orders issued on same: verbal, 1.

Same complied with: verbal, 1.

Prosecutions made, 22; fines and costs, \$675.

REPORT OF INSPECTOR ANDREW M. GOFF.

Factories: inspections, 397; visits, 52; males employed, 36,839; females employed, 13,139; males between fourteen and sixteen years, 553; females between fourteen and sixteen years, 374; illiterate minors, 273; total number employed, 49,978.

Mechanical Establishments: inspections, 94; visits, 12; males employed, 661; females employed, 416; males between fourteen and sixteen years, 17; females between fourteen and sixteen years, 9; total number employed, 1,077.

Manufacturing Establishments (no power used): inspections, 3; males employed, 12; females employed, 11; total number employed, 23.

Workshops (no power used): inspections, 70; visits, 5; males employed, 286; females employed, 122; illiterate minors, 15; total number employed, 408.

Mercantile Establishments (trade): inspections, 396; visits, 23; males employed, 1,604; females employed, 1,154; males between fourteen and sixteen years, 51; females between fourteen and sixteen years, 2; total number employed, 2,758.

Mercantile Establishments (restaurants): inspections, 92; visits, 12; males employed, 478; females employed, 367; males between fourteen and sixteen years, 2; females between fourteen and sixteen years, 1; illiterate minors, 1; total number employed, 845.

Other Establishments: inspections, 2; visits, 17; males employed, 7; males between fourteen and sixteen years, 7; total number employed, 7.

Orders issued: verbal, 150.

Orders complied with: verbal, 136.

Orders in process of compliance: verbal, 14.

Complaints investigated, 27.

Accidents investigated, 13.

Moving-picture machines inspected, 1; approved, 1.

Moving-picture machine operators' licenses renewed, 26.

Number of sittings on Board of Appeal for examination, 29.

Elevators inspected, 329; approved, 329.

Special duty during strikes: at Lawrence, eleven days; Barre, three days.

REPORT OF INSPECTOR JOHN R. DEXTER.

Factories: inspections, 168; visits, 54; males employed, 23,324; females employed, 17,412; males between fourteen and sixteen years, 1,290; females between fourteen and sixteen years, 1,314; illiterate minors, 548; total number employed, 40,736.

Mechanical Establishments: inspections, 127; visits, 1; males employed, 1,269; females employed, 175; males between fourteen and sixteen years, 31; females between fourteen and sixteen years, 6; illiterate minors, 1; total number employed, 1,444.

Manufacturing Establishments (no power used): inspections, 9; visits, 3; males employed, 68; females employed, 9; males between fourteen and sixteen years, 1; total number employed, 77.

Workshops (no power used): inspections, 35; visits, 1; males employed, 25; females employed, 123; females between fourteen and sixteen years, 1; total number employed, 148.

Mercantile Establishments (trade): inspections, 484; visits, 24; males employed, 1,465; females employed, 1,239; males between fourteen and sixteen years, 147; females between fourteen and sixteen years, 31; total number employed, 2,704.

Mercantile Establishments (restaurants): inspections, 80; males employed, 108; females employed, 388; males between fourteen and sixteen years, 3; total number employed, 496.

Other Establishments: visits, 151.

Orders issued: written, 12; verbal, 610.

Orders complied with: written, 9; verbal, 595.

Orders in process of compliance: written, 3; verbal, 15.

Complaints investigated, 101.

Accidents investigated, 9.

Moving-picture machines inspected, 2; approved, 2.

Moving-picture machine booths inspected, 4; approved, 4.

Moving-picture machine operators' licenses renewed, 1.

Places of entertainment visited for investigation, 1.

Elevators inspected, 279; approved, 279.

Inspection of industrial buildings or parts thereof, 1.

Orders issued on same: written, 1.

Same complied with: written, 1.

Prosecutions made, 2; fines and costs, \$10.

REPORT OF INSPECTOR WILLIAM H. CAIRNS.

Factories: inspections, 429; visits, 223; males employed, 39,036; females employed, 23,858; males between fourteen and sixteen years, 1,872; females between fourteen and sixteen years, 2,142; illiterate minors, 1,275; total number employed, 62,894.

Mechanical Establishments: inspections, 75; visits, 22; males employed, 784; females employed, 374; males between fourteen and sixteen years, 16; females between fourteen and sixteen years, 14; total number employed, 1,158.

Manufacturing Establishments (no power used): inspections, 1; males employed, 1; females employed, 2; total number employed, 3.

Workshops (no power used): inspections, 36; visits, 13; males employed, 72; females employed, 122; males between fourteen and sixteen years, 7; females between fourteen and sixteen years, 1; total number employed, 194.

Mercantile Establishments (trade): inspections, 296; visits, 42; males employed, 1,451; females employed, 1,153; males between fourteen and sixteen years, 61; females between fourteen and sixteen years, 37; illiterate minors, 1; total number employed, 2,604.

Mercantile Establishments (restaurants): inspections, 30; visits, 5; males employed, 102; females employed, 83; females between fourteen and sixteen years, 1; total number employed, 185.

Orders issued: written, 20; verbal, 424.

Orders complied with: written, 26; verbal, 391.

Orders in process of compliance: written, 8; verbal, 33.

Complaints investigated, 50.

Accidents investigated, 17.

Moving-picture machines inspected, 2; approved, 2.

Places of entertainment visited for investigation, 3.

Elevators inspected, 365; approved, 364; placarded, 1.

Inspection of industrial buildings or parts thereof, 1.

Special duty during strikes: at Lawrence, four days.

Fourteen written and 34 verbal orders, from previous year, complied with.

REPORT OF INSPECTOR CHARLES A. DAM.

Factories: inspections, 126; visits, 22; males employed, 16,153; females employed, 14,280; males between fourteen and sixteen years, 770; females between fourteen and sixteen years, 762; illiterate minors, 426; total number employed, 30,433.

Mechanical Establishments: inspections, 266; visits, 11; males employed, 30,647; females employed, 10,143; males between fourteen and sixteen years, 613; females between fourteen and sixteen years, 639; illiterate minors, 114; total number employed, 40,790.

Manufacturing Establishments (no power used): visits, 1.

Mercantile Establishments (trade): visits, 1,034.

Mercantile Establishments (restaurants): visits, 18.

Other Establishments: visits, 16.

Orders issued: written, 4; verbal, 139.

Orders complied with: written, 4; verbal, 139.

Orders in process of compliance: verbal, 2.
Complaints investigated, 31.
Accidents investigated, 39.
Elevators inspected, 78; approved, 78.
Prosecutions made, 6; fines and costs, \$290.

REPORT OF INSPECTOR JAMES R. HOWES.

Factories: inspections, 264; visits, 118; males employed, 22,096; females employed, 12,599; males between fourteen and sixteen years, 882; females between fourteen and sixteen years, 1,043; illiterate minors, 985; total number employed, 34,695.

Mechanical Establishments: inspections, 24; visits, 2; males employed, 242; females employed, 360; males between fourteen and sixteen years, 8; females between fourteen and sixteen years, 29; illiterate minors, 6; total number employed, 602.

Manufacturing Establishments (no power used): inspections, 19; males employed, 126; females employed, 54; females between fourteen and sixteen years, 3; illiterate minors, 2; total number employed, 180.

Workshops (no power used): inspections, 61; visits, 15; males employed, 399; females employed, 451; males between fourteen and sixteen years, 15; females between fourteen and sixteen years, 34; illiterate minors, 19; total number employed, 850.

Mercantile Establishments (trade): inspections, 256; visits, 31; number of males employed, 2,306; females employed, 2,177; males between fourteen and sixteen years, 126; females between fourteen and sixteen years, 84; illiterate minors, 3; total number employed, 4,483.

Mercantile Establishments (restaurants): inspections, 40; visits, 9; males employed, 233; females employed, 376; males between fourteen and sixteen years, 6; illiterate minors, 1; total number employed, 609.

Other Establishments: inspections, 3; visits, 16; males employed, 13; females employed, 5; males between fourteen and sixteen years, 1; illiterate minors, 1; total number employed, 18.

Orders issued: written, 75; verbal, 224.

Orders complied with: written, 23; verbal, 109.

Orders in process of compliance: written, 46; verbal, 87.

Complaints investigated, 37.

Accidents investigated, 26.

Elevators inspected, 74; approved, 69; placarded, 5.

Prosecutions made, 4; fines and costs, \$40.

REPORT OF INSPECTOR JOHN F. CASEY.¹

Factories: inspections, 65; visits, 212; males employed, 3,619; females employed, 1,256; males between fourteen and sixteen years, 145; females between fourteen and sixteen years, 97; illiterate minors, 86; total number employed, 4,875.

Mechanical Establishments: inspections, 75; visits, 29; males employed, 502; females employed, 158; males between fourteen and sixteen years, 16; females between fourteen and sixteen years, 1; total number employed, 660.

Manufacturing Establishments (no power used): inspections, 20; visits, 4; males employed, 176; females employed, 18; total number employed, 194.

Workshops (no power used): inspections, 80; visits, 24; males employed, 257; females employed, 280; males between fourteen and sixteen years, 2; females between fourteen and sixteen years, 3; total number employed, 537.

Mercantile Establishments (trade): inspections, 103; visits, 113; males employed, 542; females employed, 968; males between fourteen and sixteen years, 31; females between fourteen and sixteen years, 27; illiterate minors, 2; total number employed, 1,510.

Mercantile Establishments (restaurants): inspections, 29; visits, 8; males employed, 170; females employed, 184; total number employed, 354.

Other Establishments: inspections, 1; visits, 60; males employed, 1; females employed, 18; total number employed, 19.

Orders issued: verbal, 148.

Orders complied with: verbal, 200.

Complaints investigated, 2.

Accidents investigated, 11.

Moving-picture machine operators' licenses renewed, 2.

Elevators inspected, 95; approved, 95.

Inspection of industrial buildings or parts thereof, 7.

Prosecutions made, 4; fines and costs, \$11.

Fifty-two verbal orders, from previous year, complied with.

REPORT OF INSPECTOR SYDNEY H. CLIFFE.²

Factories: inspections, 105; visits, 48; males employed, 12,992; females employed, 6,277; males between fourteen and sixteen years, 605; females between fourteen and sixteen years, 542; illiterate minors, 372; total number employed, 19,269.

¹ Transferred to building inspection May 27, 1912.

² Appointed July 8, 1912.

Mechanical Establishments: inspections, 97; visits, 34; males employed, 1,700; females employed, 399; males between fourteen and sixteen years, 58; females between fourteen and sixteen years, 74; illiterate minors, 5; total number employed, 2,099.

Manufacturing Establishments (no power used): inspections, 10; visits, 3; males employed, 80; females employed, 3; males between fourteen and sixteen years, 1; total number employed, 83.

Workshops (no power used): inspections, 26; visits, 6; males employed, 131; females employed, 42; males between fourteen and sixteen years, 3; females between fourteen and sixteen years, 1; illiterate minors, 1; total number employed, 173.

Mercantile Establishments (trade): inspections, 27; visits, 15; males employed, 70; females employed, 55; males between fourteen and sixteen years, 2; total number employed, 125.

Mercantile Establishments (restaurants): inspections, 15; visits, 9; males employed, 35; females employed, 37; females between fourteen and sixteen years, 1; total number employed, 72.

Other Establishments: visits, 23.

Orders issued: written, 4; verbal, 53.

Orders complied with: written, 3; verbal, 39.

Orders in process of compliance: written, 1; verbal, 14.

Complaints investigated, 1.

Accidents investigated, 2.

Elevators inspected, 157; approved, 152.

Prosecutions made, 3.

REPORT OF INSPECTOR MARY A. NASON.

Mechanical Establishments: inspections, 1; males employed, 3; females employed, 1; total number employed, 4.

Manufacturing Establishments (no power used): inspections, 531; visits, 38; males employed, 919; females employed, 3,590; males between fourteen and sixteen years, 10; females between fourteen and sixteen years, 63; total number employed, 4,509.

Workshops (no power used): inspections, 32; males employed, 23; females employed, 98; total number employed, 121.

Mercantile Establishments (trade): inspections, 434; visits, 88; males employed, 5,630; females employed, 10,143; males between fourteen and sixteen years, 339; females between fourteen and sixteen years, 570; total number employed, 15,773.

Mercantile Establishments (restaurants): inspections, 63; visits, 23; males employed, 202; females employed, 283; males between fourteen and sixteen years, 1; females between fourteen and sixteen years, 1; total number employed, 485.

Other Establishments: inspections, 15; visits, 4; males employed, 32; females employed, 56; females between fourteen and sixteen years, 3; total number employed, 88.

Orders issued: verbal, 708.

Orders complied with: verbal, 708.

Complaints investigated, 13.

REPORT OF INSPECTOR ARTHUR F. ROACH.¹

Factories: inspections, 48; visits, 34; males employed, 5,130; females employed, 2,534; males between fourteen and sixteen years, 182; females between fourteen and sixteen years, 176; illiterate minors, 58; total number employed, 7,664.

Mechanical Establishments: inspections, 4; visits, 2; males employed, 40; females employed, 70; females between fourteen and sixteen years, 7; total number employed, 110.

Workshops (no power used): inspections, 3; males employed, 26; females employed, 30; total number employed, 56.

Mercantile Establishments (trade): inspections, 7; visits, 12; males employed, 128; females employed, 31; males between fourteen and sixteen years, 1; females between fourteen and sixteen years, 1; total number employed, 159.

Mercantile Establishments (restaurants): inspections, 3; visits, 1; males employed, 24; females employed, 9; total number employed, 33.

Other Establishments: visits, 1.

Orders issued: verbal, 43.

Orders complied with: verbal, 43.

Complaints investigated, 8.

Accidents investigated, 9.

Elevators inspected, 56; approved, 56.

Inspection of industrial buildings or parts thereof, 2.

Orders issued on same: written, 1; verbal, 1.

Same complied with: written, 1; verbal, 1.

RECAPITULATION OF REPORTS OF INSPECTORS OF BUILDINGS.

Relating to the Erection of Buildings.

Theatres: —

Plans submitted, ...	45
Plans filed, ...	31
Consultations, ...	212
Changes directed, ...	77
Certificates issued, ...	15
Visit to examine changes, ...	95
Visit to examine construction, ...	292

¹ Assisted as a building inspector during part of the year.

Public Halls: —

Plans submitted, ...	31
Plans filed, ...	24
Consultations, ...	137
Changes directed, ...	52
Certificates issued, ...	5
Visit to examine changes, ...	81
Visit to examine construction, ...	120

Special Halls: —

Plans submitted, ...	8
Plans filed, ...	7
Consultations, ...	51
Changes directed, ...	12
Certificates issued, ...	1
Visit to examine changes, ...	25
Visit to examine construction, ...	89

Other Halls: —

Plans submitted, ...	32
Plans filed, ...	31
Consultations, ...	112
Changes directed, ...	35
Certificates issued, ...	13
Visit to examine changes, ...	48
Visit to examine construction, ...	155

Churches: —

Plans submitted, ...	49
Plans filed, ...	46
Consultations, ...	55
Changes directed, ...	28
Certificates issued, ...	14
Visit to examine changes, ...	17
Visit to examine construction, ...	121

Schools: —

Plans submitted, ...	90
Plans filed, ...	87
Consultations, ...	244
Changes directed, ...	75
Certificates issued, ...	34
Visit to examine changes, ...	56
Visit to examine construction, ...	180

Hotels, Lodging and Boarding Houses: —

Plans submitted, ...	49
Plans filed, ...	31
Consultations, ...	77
Changes directed, ...	48
Certificates issued, ...	25
Visit to examine changes, ...	41

Apartment and Tenement Houses:—

Plans submitted, ...	148
Plans filed, ...	142
Consultations, ...	171
Changes directed, ...	90
Certificates issued, ...	97
Visit to examine changes, ...	45
Visit to examine construction, ...	464

Manufacturing Buildings:—

Plans submitted, ...	79
Plans filed, ...	76
Consultations, ...	54
Changes directed, ...	21
Certificates issued, ...	44
Visit to examine changes, ...	16
Visit to examine construction, ...	81

Mercantile Buildings:—

Plans submitted, ...	27
Plans filed, ...	27
Consultations, ...	34
Changes directed, ...	16
Certificates issued, ...	16
Visit to examine changes, ...	22
Visit to examine construction, ...	108

Other Buildings:—

Plans submitted, ...	67
Plans filed, ...	59
Consultations, ...	117
Changes directed, ...	37
Certificates issued, ...	30
Visit to examine changes, ...	27
Visit to examine construction, ...	116

Grand Summary:—

Total plans submitted, ...	625
Total plans filed, ...	561
Total consultations, ...	1,264
Total changes directed, ...	491
Total certificates issued, ...	294
Total visits to examine changes, ...	473
Total visits to examine construction, ...	1,827

Relating to Existing Buildings.

Theatres:—

Inspections, ...	1,786
Visits, ...	628
Inspection of heating and ventilation, ...	14
Certificates issued, ...	3

Public Halls:—

Inspections, ...	849
Visits, ...	560
Certificates issued, ...	11

Special Halls:—

Inspections, ...	607
Visits, ...	177

Other Halls:—

Inspections, ...	1,095
Visits, ...	734
Certificates issued, ...	796

Churches:—

Inspections, ...	135
Inspection of heating and ventilation, ...	4
Certificates issued, ...	2

Schools:—

Inspections, ...	254
Visits, ...	293
Inspection of heating and ventilation, ...	63

Hotels, Lodging and Boarding Houses:—

Inspections, ...	788
Visits, ...	474
Certificates issued, ...	967

Apartment and Tenement Houses:—

Inspections, ...	145
Visits, ...	144
Certificates issued, ...	66

Manufacturing Buildings:—

Inspections, ...	34
Visits, ...	212
Certificates issued, ...	8

Mercantile Buildings:—

Inspections, ...	12
Visits, ...	97

Other Buildings:—

Inspections, ...	66
Visits, ...	728
Certificates issued, ...	49

GRAND SUMMARY.

Total inspections, ...	5,771
Total visits, ...	4,047
Total inspections of heating and ventilation, ...	81
Total certificates issued, ...	1,902

RECAPITULATION OF REPORTS OF INSPECTORS OF FACTORIES.

Factories:—

Inspections, ...	4,539
Visits, ...	1,861
Males employed, ...	286,041
Females employed, ...	162,001
Males between fourteen and sixteen years, ...	9,800
Females between fourteen and sixteen years, ...	10,505
Illiterate minors, ...	5,414
Total number employed, ...	448,042

Mechanical establishments:—

Inspections, ...	1,294
Visits, ...	295
Males employed, ...	40,473
Females employed, ...	16,327
Males between fourteen and sixteen years, ...	858
Females between fourteen and sixteen years, ...	844
Illiterate minors, ...	132
Total number employed, ...	56,800

Manufacturing establishments (no power used):—

Inspections, ...	1,568
Visits, ...	428
Males employed, ...	23,900
Females employed, ...	15,873
Males between fourteen and sixteen years, ...	636
Females between fourteen and sixteen years, ...	1,082
Illiterate minors, ...	110
Total number employed, ...	39,773

Workshops (no power used):—

Inspections, ...	1,209
Visits, ...	234
Males employed, ...	4,973
Females employed, ...	4,539
Males between fourteen and sixteen years, ...	84
Females between fourteen and sixteen years, ...	78
Illiterate minors, ...	74
Total number employed, ...	9,482

Mercantile establishments (trade):—

Inspections, ...	5,859
Visits, ...	2,460
Males employed, ...	43,135
Females employed, ...	46,148
Males between fourteen and sixteen years, ...	1,748
Females between fourteen and sixteen years, ...	1,900
Illiterate minors, ...	26
Total number employed, ...	89,283

Mercantile establishments (restaurants): —

Inspections, ...	1,138
Visits, ...	378
Males employed, ...	7,498
Females employed, ...	6,454
Males between fourteen and sixteen years, ...	30
Females between fourteen and sixteen years, ...	13
Illiterate minors, ...	44
Total number employed, ...	13,952

Other establishments: —

Inspections, ...	34
Visits, ...	1,467
Males employed, ...	91
Females employed, ...	79
Males between fourteen and sixteen years, ...	9
Females between fourteen and sixteen years, ...	3
Illiterate minors, ...	1
Total number employed, ...	170

GRAND SUMMARY.

Total inspections, ...	15,641
Total visits, ...	7,123
Total males employed, ...	406,081
Total females employed, ...	251,421
Total number employed, ...	657,502
Total males between fourteen and sixteen years employed, ...	13,165
Total females between fourteen and sixteen years employed, ...	14,425
Total illiterate minors employed, ...	5,801

RECAPITULATION OF REPORTS OF MISCELLANEOUS DUTIES PERFORMED
BY THE INSPECTORS OF BUILDINGS AND OF FACTORIES.

Orders issued: written, 1,215; verbal, 6,816, ...	8,031
Orders complied with: written, 1,012; verbal, 6,646, ...	7,658
Orders in process of compliance: written, 341; verbal, 471, ...	812
Inspections for special permits for entertainments, ...	208
Inspections for special permits for entertainments approved, ...	208
Moving-picture machines inspected, ...	204
Moving-picture machines approved, ...	191
Moving-picture machine booths inspected, ...	124
Moving-picture machine booths approved, ...	121
Moving-picture machine operators' licenses renewed, ...	513
Applicants to operate moving-picture machines examined, ...	564
Applicants to operate moving-picture machines licensed, ...	150
Applicants to operate moving-picture machines rejected, ...	414
Applicants to operate moving-picture machines appealed, ...	114

Number of sittings on Board of Appeal for examination, .	153
Number of days censoring films for Sunday use, . .	101
Places of entertainment visited for investigation, . .	834
Complaints investigated, ...	743
Elevators inspected, ...	2,177
Elevators approved, ...	1,981
Elevators placarded, ...	11
Inspection of industrial buildings, ...	423
Certificates issued on industrial buildings, ...	15
Accidents investigated, ...	268
Number of days inspectors acting as Deputy Chief, . .	36
Number of days inspectors doing special duty during strikes:	
at Lawrence, fifty-four; Barre, twelve, ...	56
Prosecutions made, ...	105
Fines and costs paid, ...	\$2,298 80
Orders issued during previous year complied with: written,	
75; verbal, 345, ...	420

BOILER INSPECTION.

Under date of July 8, 1912, upon the advice of the Attorney-General, I appointed Inspector George A. Luck as Acting Chief Inspector of Boilers, such appointment having become necessary in consequence of the resignation of the Chief Inspector of Boilers on that date, and the Attorney-General having rendered an opinion that the provisions of chapter 521, Acts of 1906, did not provide for the appointment of a successor to such office. Since the appointment of Mr. Luck as Acting Chief Inspector the work of boiler inspection has been carried on efficiently and to the utmost satisfaction of all parties concerned.

The progressive work of the boiler inspection division of the inspection department has been maintained during the past year, there being now twenty-five boiler inspectors detailed for the enforcement of the boiler inspection law, engineers' and firemen's license law, operators of hoisting machinery law, and the rules formulated by the Board of Boiler Rules. Thirteen of these boiler inspectors are located at the main office, Boston; two at the branch office, Salem; one at the branch office, Lowell; two at the branch office, Fall River; two at the branch office, Worcester; two at the branch office, Springfield; one at the branch office, Northampton; one at the branch office, North Adams; and one at the branch office, Pittsfield. These assignments place the boiler inspectors in close touch with conditions as they actually exist throughout the Commonwealth.

There has been no loss of life from steam-boiler explosion in Massachusetts during the past year.

The amendments to the engineers' and firemen's license law, which took effect Jan. 1, 1912, have justified the wisdom

of the Legislature in requiring certain experience before a person shall be eligible to make application for a license, and requiring a board of three examiners, whose decision is final, for the examination of an applicant for a first or second class engineer's license, a special license to operate a first-class plant, or a special license to have charge of a second-class plant. It will be readily understood that the assignment of three inspectors for such examinations has at times affected the carrying out of their other duties; but the good results obtained from the amendments greatly outweigh these temporary inconveniences.

The operation of the boiler inspection law, chapter 465, Acts of 1907 (as amended by chapter 563, Acts of 1908, chapter 393, Acts of 1909, and chapter 531, Acts of 1912), has been satisfactory. The inspectors have been diligent in carrying out the provisions of the law and rules, and in informing owners and users of the legal requirements.

There has been no change in chapter 656 of the Acts of 1911, an act relative to licensing operators of hoisting machinery when the motive power is mechanical and other than steam.

The appointment of five additional boiler inspectors to the inspection department, in March, 1912, has been of great assistance in relieving the enormous pressure which has previously hampered the progress of the work.

There were 16,766 reports of boiler inspections, received from the 10 insurance companies authorized to inspect and insure steam boilers in this Commonwealth, as compared with 15,986 received during the previous year.

Careful comparison has been made, with previous data, on each of these insurance inspectors' reports, as well as the reports of the 4,334 inspections made by the boiler inspectors of this department.

During the year there have been 2,002 MASSACHUSETTS STANDARD boilers constructed by 59 of the 98 boiler manufacturers, who have been authorized by the Board of Boiler Rules to construct MASS. STD. boilers. In addition, 40 boilers, not conforming to the MASS. STD.

in some one or more details, have been passed by special inspection in accordance with the provisions of paragraph 1, section 6, Part III. of the rules formulated by the Board of Boiler Rules, and permission to install was refused by the Board on 2 other boilers. The total number of boilers not MASS. STD., the installation of which has been approved by the Board of Boiler Rules to date, has been 368, and the number of boilers the installation of which has not been approved has been 11, making a total of 379 of such boilers on which action has been taken.

During the year, 44 applicants, employed by the 10 insurance companies authorized to inspect and insure steam boilers in this Commonwealth, were examined for certificates of competency as inspectors of steam boilers for this Commonwealth, of whom 31 were granted certificates. There are at present 106 such inspectors holding certificates of competency from this department.

An annual appropriation of \$1,000 is authorized to be used for investigation work, apparatus and for maintenance of apparatus used by the boiler inspection department. During the year this appropriation was expended principally in the purchase of apparatus and repairs to apparatus used in the central and branch offices, in order to bring the equipment of the department as nearly up to standard as possible.

The amounts received by the Chief Inspector and Acting Chief Inspector, from the various inspectors of boilers during the year, were as follows:—

For the examination of applicants for licenses as engineers or firemen, ...	\$6,482
For the examination of applicants for licenses as operators of hoisting machinery, where the motive power is mechanical and other than steam, ...	281
For the inspection of steam boilers, internal, ...	12,835
For the inspection of steam boilers, external, ...	3,006
Total, ...	\$22,604

which sum has been paid to the Treasurer of the Commonwealth.

The following list specifies the prosecutions which have been made during the year by the inspectors of boilers:—

CAUSE OF PROSECUTION.	Number of Prosecutions.	Fined.	Filed.	Pending.	Discharged.	Defaulted.	Total Amount of Fines and Costs.
Having charge of and operating boilers without being duly licensed.	6	6	-	-	-	-	\$107 95
Having charge of engine without being duly licensed.	1	1	-	-	-	-	15 00
Operating boilers without being duly licensed.	23	14	6	1	1	1	300 00
Operating engine without being duly licensed.	4	2	1	-	1	-	35 00
Causing boiler to be operated by a person not duly licensed.	9	4	3	1	1	-	90 00
Causing engine to be operated by a person not duly licensed.	3	2	1	-	-	-	35 00
Failure to keep daily records of boiler,	6	3	3	-	-	-	30 00
Failure to keep daily records of boiler accessible.	2	-	1	1	-	-	-
Operating boiler without a certificate of inspection.	1	1	-	-	-	-	10 00
Using boiler not equipped with required appendages.	3	3	-	-	-	-	90 00
Causing boiler to be operated at pressure in excess of that allowed in certificate of inspection.	1	1	-	-	-	-	20 00
Not preparing boiler for inspection, as directed by inspector.	2	-	-	2	-	-	-
Getting steam on a boiler used in connection with a pile driver, not in engineer's presence.	1	-	1	-	-	-	-
Operating boiler before complying with orders or obtaining certificate.	2	1	-	-	1	-	25 00
Causing boiler to be operated for more than one week without licensed person.	1	-	1	-	-	-	-
Nonpayment of boiler inspection fee,	2	2	-	-	-	-	26 00
Totals,	67	40	17	5	4	1	\$783 95

The act relative to the operation and inspection of steam boilers was amended in some of its sections by the Legislature of 1912, and such amendments will be found on pages 44 to 48 of this report.

There has been no change in the rules formulated by the Board of Boiler Rules since Aug. 5, 1909, the following being the rules now in force:—

RULES FORMULATED BY THE BOARD OF
BOILER RULES.

The Rules previously issued and additions made thereto are arranged as follows: —

PART I. These Rules, in addition to the Rules contained in Part II., apply to boilers installed on or **before** May 1, 1908.

PART II. These Rules apply to **all boilers** now or hereafter installed.

PART III. These Rules, in addition to the Rules contained in Part II., apply to boilers installed **after** May 1, 1908.

PART I.

These Rules, in addition to the Rules contained in Part II., apply to boilers installed on or before May 1, 1908.

SECTION 1.

To deter-
mine
maximum
allowable
pressure.

1. The maximum pressure to be allowed on a steel or wrought-iron shell or drum of a boiler shall be determined from the minimum thickness of the shell plates, the lowest tensile strength of the plates, the efficiency of the longitudinal joint, the inside diameter of the outside course and the lowest factor of safety allowed by these rules, the formula being:—

$$\frac{T.S. \times t \times \%}{R \times F.S.} = \text{maximum allowable working pressure per square inch, in pounds.}$$

T.S. = tensile strength of shell plates, in pounds.

t = minimum thickness of shell plates, in inches.

% = efficiency of longitudinal joint, method of determining which is given in section 7, Part II. of these Rules.

R = radius = one-half ($\frac{1}{2}$) the inside diameter of the outside course of the shell or drum.

F.S. = lowest factor of safety allowed by these Rules.

Tensile
strength.

2. When the tensile strength of steel or wrought-iron shell plates is *not* known, it shall be taken as fifty-five thousand (55,000) pounds for steel and forty-five thousand (45,000) pounds for wrought iron.

Factor of
safety.

3. The lowest factor of safety to be used for boilers, the longitudinal joints of which are of butt and double-strap construction, shall be four and five-tenths (4.5).

NOTE. — Factors of safety which also apply to boilers installed before May 1, 1908, are specified in paragraph 7, section 1, Part II. of these Rules.

Rivets.

4. When the diameter of the rivet holes in the longitudinal joints of a boiler is *not* known, the diameter and cross-sectional area of rivets, after driving, shall be taken as follows: —

Thickness of plate, .	$\frac{1}{4}$ " .25"	$\frac{9}{32}$ " .28125"	$\frac{5}{16}$ " .3125"	$\frac{11}{32}$ " .34375"	$\frac{3}{8}$ " .375"	$\frac{3}{8}$ " .375"	$\frac{13}{32}$ " .40625"
Diameter of rivet after driving.	$1\frac{1}{16}$ "	$1\frac{1}{16}$ "	$\frac{3}{4}$ "	$\frac{3}{4}$ "	$\frac{3}{4}$ " up to and including 2" pitch.	$1\frac{3}{16}$ " over 2" pitch.	$1\frac{3}{16}$ "
Cross-sectional area of rivet after driving.	.3712 sq. in.	.3712 sq. in.	.4418 sq. in.	.4418 sq. in.	.4418 sq. in.	.5185 sq. in.	.5185 sq. in.

Thickness of plate, .	$\frac{7}{16}$ " .4375"	$\frac{7}{16}$ " .4375"	$\frac{15}{16}$ " .46875"	$\frac{1}{2}$ " .5"	$\frac{9}{16}$ " .5625"	$\frac{5}{8}$ " .625"
Diameter of rivet after driving.	$\frac{7}{8}$ " up to and including 2 $\frac{1}{4}$ " pitch.	$1\frac{5}{16}$ " over 2 $\frac{1}{4}$ " pitch.	$1\frac{5}{16}$ "	$1\frac{5}{16}$ "	$1\frac{1}{16}$ "	$1\frac{1}{16}$ "
Cross-sectional area of rivet after driving.	.6013 sq. in.	.6903 sq. in.	.6903 sq. in.	.6903 sq. in.	.8866 sq. in.	.8866 sq. in.

5. The minimum size of a safety valve (other than a direct spring-loaded safety valve) shall be governed by the pressure allowed, as stated in the certificate of inspection, and by the grate area of the boiler, subject to the following conditions and as shown by the table in paragraph 6 of this section.

Condition A. — A single boiler, or two or more boilers connected to a common steam main and allowed the *same pressure*: the minimum size of safety valve for each boiler shall be governed by the pressure allowed, as stated in the certificate of inspection, and by the grate area of the boiler.

Size of safety valves, not spring-loaded.

Condition B. — When two or more boilers, which are allowed *different pressures*, are connected to a common steam main, the minimum size of each safety valve shall be governed by the pressure allowed, as stated in the certificate of inspection, and by the grate area of the boiler; and all safety valves *shall be set* at a pressure not exceeding the lowest pressure allowed. The aggregate valve area shall not be less than that required for the aggregate grate area, based on the lowest pressure allowed, as shown by the table.

Single boilers, and boilers connected and allowed same pressure.

Boilers connected and allowed different pressures.

Condition C. — When two or more boilers, which are allowed *different pressures*, are connected to a common steam main, and all safety valves *are not set* at a pressure not exceeding the lowest pressure allowed, the boiler or boilers allowed the lower pressures shall each be protected by a safety valve or valves placed on the connecting pipe to the steam main; the area or combined area of the safety valve or valves placed

on the connecting pipe to the steam main shall not be less than the area of the connecting pipe, except when the steam main is smaller than the connecting pipe, when the area or combined area of safety valve or valves placed on the connecting pipe shall not be less than the area of the steam main. Each safety valve placed on the connecting pipe shall be set at a pressure not exceeding the pressure allowed on the boiler it protects.

6. A table of areas of grate surfaces, in square feet, for other than direct spring-loaded safety valves, follows:—

MAXIMUM PRESSURE ALLOWED PER SQUARE INCH ON THE BOILER.		ZERO TO 25 POUNDS.	OVER 25 TO 50 POUNDS.	OVER 50 TO 100 POUNDS.
Diameter of Valve, in Inches.	Area of Valve, in Square Inches.	Area of Grate, in Square Feet.		
1	.7854	1.50	1.75	2.00
1¼	1.2272	2.25	2.50	3.00
1½	1.7671	3.00	3.75	4.00
2	3.1416	5.50	6.50	7.25
2½	4.9087	8.25	10.00	11.00
3	7.0686	11.75	14.25	16.00
3½	9.6211	16.00	19.50	21.75
4	12.5660	21.00	25.50	28.25
4½	15.9040	26.75	32.50	36.00
5	19.6350	32.75	40.00	44.00

7. Each boiler shall have a bottom blow-off pipe, fitted with a valve or cock, in direct connection with the lowest water space practicable.

**Bottom
blow-off.**

PART II.

These rules apply to all boilers now or hereafter installed.

SECTION 1.

1. The pressure allowed on a boiler constructed wholly of cast iron shall not exceed twenty-five (25) pounds per square inch. **Maximum pressure.**

2. The pressure allowed on a boiler, the tubes of which are secured to cast-iron headers, shall not exceed one hundred and sixty (160) pounds per square inch.

3. The pressure allowed on a boiler fitted with a district police lock-pop safety valve shall not exceed fifteen (15) pounds per square inch. This special type of safety valve is provided for by section 78, chapter 102 of the Revised Laws (Engineers' and Firemen's License Law), and applies to boilers used for heating purposes exclusively.

4. The resistance to crushing of mild steel shall be taken at ninety-five thousand (95,000) pounds per square inch of cross-sectional area. **Crushing strength of mild steel.**

5. The maximum shearing strength of rivets per square inch of cross-sectional area shall be taken as follows:— **Shearing strength of rivets.**

	Pounds.
Iron rivets in single shear, ...	38,000
Iron rivets in double shear, ...	70,000
Steel rivets in single shear, ...	42,000
Steel rivets in double shear, ...	78,000

6. The following table gives the allowable shearing strength of rivets from eleven-sixteenths ($\frac{11}{16}$) inch to one and one-sixteenth ($1\frac{1}{16}$) inches in diameter, in pounds:—

Diameter of rivet after driving, ...	$\frac{11}{16}$ " .6875"	$\frac{3}{4}$ " .75"	$1\frac{1}{8}$ " .8125"	$\frac{7}{8}$ " .875"	$1\frac{1}{4}$ " .9375"	$1\frac{1}{2}$ " 1.0625"
Cross-sectional area of rivet after driving.	.3712 sq. in.	.4418 sq. in.	.5185 sq. in.	.6013 sq. in.	.6903 sq. in.	.8866 sq. in.
Allowable Shearing Strength, in Pounds.						
Iron, single shear, ...	14,106	16,788	19,703	22,849	26,231	33,691
Iron, double shear, ...	25,984	30,926	36,295	42,091	48,321	62,062
Steel, single shear, ...	15,590	18,556	21,777	25,255	28,933	37,237
Steel, double shear, ...	28,954	34,460	40,443	46,901	53,843	69,155

7. The lowest factors of safety used for boilers, the shells or drums of which are exposed to the products of combustion and the longitudinal joints of which are of lap-riveted construction, shall be as follows:—

- Factors of safety.**
- (a) Five (5) for boilers not over ten years old.
 - (b) Five and five-tenths (5.5) for boilers over ten and not over fifteen years old.
 - (c) Five and seventy-five hundredths (5.75) for boilers over fifteen and not over twenty years old.
 - (d) Six (6) for boilers over twenty years old.
 - (e) Five (5) for boilers, the longitudinal joints of which are of lap-riveted construction and the shells or drums of which are not exposed to the products of combustion.

SECTION 2.

Safety valves. 1. Each boiler shall have one (1) or more safety valves.

Size of safety valves, spring-loaded. 2. The minimum size of a direct spring-loaded safety valve shall be governed by the pressure allowed, as stated in the certificate of inspection, and by the grate area of the boiler, subject to the following conditions and as shown by the table in paragraph 3 of this section.

Single boilers, and boilers connected and allowed same pressure. *Condition A.*—A single boiler, or two or more boilers connected to a common steam main and allowed the *same pressure*: the minimum size of safety valve for each boiler shall be governed by the pressure allowed, as stated in the certificate of inspection, and by the grate area of the boiler.

Boilers connected and allowed different pressures. *Condition B.*—When two or more boilers, which are allowed *different pressures*, are connected to a common steam main, the minimum size of each safety valve shall be governed by the pressure allowed, as stated in the certificate of inspection, and by the grate area of the boiler; and all safety valves *shall be set* at a pressure not exceeding the lowest pressure allowed. The aggregate valve area shall not be less than that required for the aggregate grate area, based on the lowest pressure allowed, as shown by the table.

Condition C.—When two or more boilers, which are allowed *different pressures*, are connected to a common steam main, and all safety valves *are not set* at a pressure not exceeding the lowest pressure allowed, the boiler or boilers allowed the lower pressures shall each be protected by a safety valve or valves placed on the connecting pipe to the steam main; the area or combined area of the safety valve or valves placed on the connecting pipe to the steam main shall not be less than the area of the connecting pipe, except when the steam main is smaller than

the connecting pipe, when the area or combined area of safety valve or valves placed on the connecting pipe shall not be less than the area of the steam main. Each safety valve placed on the connecting pipe shall be set at a pressure not exceeding the pressure allowed on the boiler it protects.

3. A table of areas of grate surfaces, in square feet, for direct spring-loaded safety-valves, follows:—

	W= $\frac{75}{3600}$ P= 40 A=.401	W= $\frac{100}{3600}$ P= 65 A=.329	W= $\frac{160}{3600}$ P= 115 A=.297	W= $\frac{160}{3600}$ P= 140 A=.244	W= $\frac{200}{3600}$ P= 190 A=.224	W= $\frac{240}{3600}$ P= 240 A=.213
Maximum Pressure allowed per Square Inch on the Boiler.	Zero to 25 Pounds.	Over 25 to 50 Pounds.	Over 50 to 100 Pounds.	Over 100 to 150 Pounds.	Over 150 to 200 Pounds.	Over 200 Pounds.
Diameter of Valve, in Inches.	Area of Valve, in Square Inches.	Area of Grate, in Square Feet.				
1	.7854	2.00	2.50	2.75	3.25	3.75
1¼	1.2272	3.25	4.00	4.25	5.00	5.75
1½	1.7671	4.50	5.50	6.00	7.25	8.50
2	3.1416	8.00	9.75	10.75	13.00	15.00
2½	4.9087	12.50	15.00	16.50	20.00	23.00
3	7.0686	17.75	21.50	24.00	29.00	33.25
3½	9.6211	24.00	29.50	32.50	39.50	45.25
4	12.5660	31.50	38.25	42.50	51.50	59.00
4½	15.9040	40.00	48.50	53.50	65.00	74.25
5	19.6350	49.00	60.00	66.00	80.00	92.25

4. When the conditions exceed those on which the table (paragraph 3) is based, the following formula shall be used:—

$$A = \frac{W \ 70}{P} \times 11.$$

A = area of direct spring-loaded safety valve in square inches per square foot of grate surface.

W = weight of water in pounds evaporated per square foot of grate surface per second.

P = pressure (absolute) at which the safety valve is set to blow.

5. A table of areas of grate surface, in square feet, for safety valves not direct spring-loaded, is given in paragraph 6, section 1, Part I. of these Rules.

6. If more than one (1) safety valve is used, the minimum combined area shall be in accordance with the table.

7. Each safety valve shall have full-sized direct connection to the boiler, and when an escape pipe is used it shall be full-sized and fitted with an open drain, to prevent water lodging in the upper part of safety valve or escape pipe. When a boiler is fitted with

Safety valve connections.

two (2) safety valves on one (1) connection, this connection to the boiler shall have a cross-sectional area equal to or greater than the combined area of the two (2) safety valves. No valve of any description shall be placed between the safety valve and the boiler, nor on the escape pipe between the safety valve and the atmosphere. When an elbow is placed on a safety valve escape pipe it shall be located close to the safety valve outlet, or the escape pipe shall be securely anchored and supported.

8. Safety valves having either the seat or disc of cast iron shall not be used.

9. Safety valves hereafter installed on boilers shall not exceed five (5) inches in diameter, and shall be the direct spring-loaded type, with seat and bearing surface of the disc inclined at an angle of about forty-five (45) degrees to the center line of the spindle; designed with a substantial lifting device so that the disc can be lifted from its seat with the spindle, not less than one-eighth ($\frac{1}{8}$) the diameter of the valve, when the pressure on the boiler is seventy-five (75) per cent. of that at which the safety valve is set to blow.

**Fusible
plugs.**

10. Fusible plugs, as required by section 20, chapter 465, Acts of 1907, shall be filled with pure tin.

11. The least diameter of fusible metal shall not be less than one-half ($\frac{1}{2}$) inch, except for working pressures of over one hundred and seventy-five (175) pounds, or when it is necessary to place a fusible plug in a tube, in which cases the least diameter of fusible metal shall not be less than three-eighths ($\frac{3}{8}$) inch.

12. Each boiler shall have one (1) or more fusible plugs, located as follows:—

(a) In Horizontal Return Tubular Boilers—in the rear head, not less than two (2) inches above the upper row of tubes, measurement to be taken from the line of the upper surface of tubes to the center of the plug, as shown in Figs. 12 and 13 of these Rules, and projecting through the sheet not less than one (1) inch.

(b) In Horizontal Flue Boilers—in the rear head, on a line with the highest part of the boiler exposed to the products of combustion, and projecting through the sheet not less than one (1) inch.

(c) In Locomotive Type or Star Water Tube Boilers—in the highest part of the crown sheet, and projecting through the sheet not less than one (1) inch.

(d) In Vertical Fire-tube Boilers—in an outside tube, not less than one-third ($\frac{1}{3}$) the length of the tube above the lower tube sheet.

(e) In Vertical Fire-tube Boilers, Corliss Type—in a tube, not less than one-third ($\frac{1}{3}$) the length of the tube above the lower tube sheet.

(f) In Vertical Submerged Tube Boilers—in the upper tube sheet.

(g) In Water-tube Boilers, Horizontal Drums, Babcock & Wilcox Type—in the upper drum, not less than six (6) inches above the bottom of the drum, over the first pass of the products of combustion, and projecting through the sheet not less than one (1) inch.

(h) In Stirling Boilers, Standard Type—in the front side of the middle drum, not less than four (4) inches above the bottom of the drum, and projecting through the sheet not less than one (1) inch.

(i) In Stirling Boilers, Superheater Type—in the front drum, not less than six (6) inches above the bottom of the drum, exposed to the products of combustion, and projecting through the sheet not less than one (1) inch.

(j) In Water-tube Boilers, Heine Type—in the front course of the drum, not less than six (6) inches above the bottom of the drum, and projecting through the sheet not less than one (1) inch.

(k) In Robb-Mumford Boilers, Standard Type—in the bottom of the steam and water drum, twenty-four (24) inches from the center of the rear neck, and projecting through the sheet not less than one (1) inch.

(l) In Water-tube Boilers, Almy Type—in a tube or fitting exposed to the products of combustion.

(m) In Vertical Boilers, Climax or Hazelton Type—in a tube or center drum not less than one-half ($\frac{1}{2}$) the height of the shell, measuring from the lowest circumferential seam.

(n) In Cahall Vertical Water-tube Boilers—in the inner sheet of the top drum, not less than six (6) inches above the upper tube sheet, and projecting through the sheet not less than one (1) inch.

(o) In Scotch Marine Type Boilers—in combustion chamber top, and projecting through the sheet not less than one (1) inch.

(p) In Dry Back Scotch Type Boilers—in rear head, not less than two (2) inches above the upper row of tubes, and projecting through the sheet not less than one (1) inch.

(q) In Economic Type Boilers—in the rear head, above the upper row of tubes.

(r) In Cast-iron Sectional Heating Boilers—in a section over and in direct contact with the products of combustion in the primary combustion chamber.

(s) In Water-tube Boilers, Worthington Type—in the front side of the steam and water drum, not less than four (4) inches above the bottom of the drum, and projecting through the sheet not less than one (1) inch.

(t) For other types and new designs, fusible plugs shall be placed at the lowest permissible water level, in the direct path of the products of combustion, as near the primary combustion chamber as possible.

Steam gage. 13. Each boiler shall have a steam gage connected to the steam space of the boiler by a syphon, or equivalent device, sufficiently large to fill the gage tube with water, and in such manner that the steam gage cannot be shut off from the boiler except by a cock with T or lever handle, which shall be placed on the pipe near the steam gage.

Steam gage dial. 14. The dial of the steam gage shall be graduated to not less than one and one-half ($1\frac{1}{2}$) times the maximum pressure allowed on the boiler.

Attaching test gage. 15. Each boiler shall be provided with a one-fourth ($\frac{1}{4}$) inch pipe size connection for attaching inspector's test gage when boiler is in service, so that the accuracy of the boiler steam gage can be ascertained, as required by section 3, chapter 465, Acts of 1907.

Water glass. 16. Each boiler shall have at least one (1) water glass, the lowest visible part of which shall be above the fusible plug and lowest safe water line.

Gage cocks, 25 pounds pressure, or less. 17. Each boiler shall have two (2) or more gage cocks, located within the range of the visible length of water glass, when the maximum pressure allowed does not exceed twenty-five (25) pounds per square inch, except when such boiler has two (2) water glasses, located not less than three (3) feet apart, on the same horizontal line.

Gage cocks, over 25 pounds pressure. 18. Each boiler shall have three (3) or more gage cocks, located within the range of the visible length of water glass, when the maximum pressure allowed exceeds twenty-five (25) pounds per square inch, except when such boiler has two (2) water glasses, located not less than three (3) feet apart, on the same horizontal line.

Feed pipe. 19. Each boiler shall have a feed pipe fitted with a check valve, and also a stop valve or stop cock between the check valve and the boiler, the feed water to discharge below the lowest safe water line. Means must be provided for feeding a boiler with water against the maximum pressure allowed on the boiler.

Stop valve. 20. Each steam outlet from a boiler (except safety valve connections) shall be fitted with a stop valve.

21. When a stop valve is so located that water can accumulate, ample drains shall be provided.

Damper regulator. 22. When a damper regulator is used, the boiler pressure pipe shall be fitted with a valve or cock, and shall be connected to the steam space of the boiler.

Lamphrey fronts. 23. Each boiler fitted with a Lamphrey Boiler Furnace Mouth Protector, or similar appendage, having valves on

the pipes connecting the same with the boiler, shall have these valves locked or sealed *open*, so that the locks or seals will require to be removed or broken to shut the valves.

24. The main return pipe to a heating boiler (Gravity Return System) shall have a check valve, and also a stop valve between the check valve and the boiler.

Valves on
return
pipes.

25. When there are two connected boilers (Gravity Return System), one (1) check valve *may* be placed on the main return pipe and a stop valve on the branch pipe to each boiler, as shown in Fig. 1.

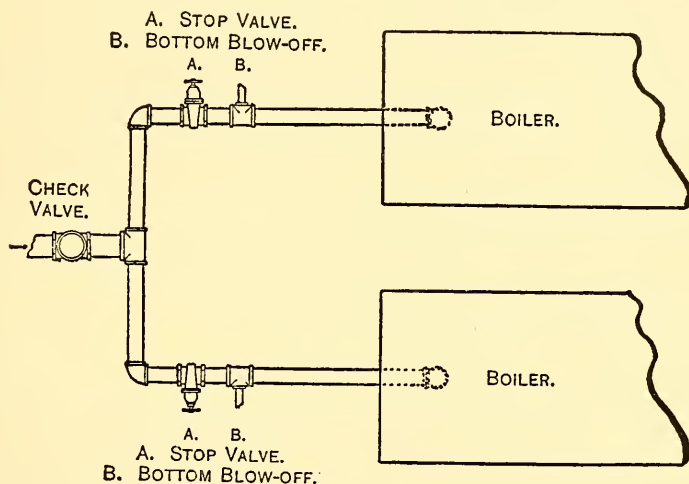


FIG. 1.

SECTION 3.

1. A boiler having one square foot of grate surface shall be rated at three (3) horse power when the safety valve is set to blow at over twenty-five (25) pounds pressure per square inch.

Horse
power
rating.

2. A boiler having two square feet of grate surface shall be rated at three (3) horse power when the safety valve is set to blow at twenty-five (25) pounds pressure per square inch, or less.

SECTION 4.

1. The owner or user of a boiler which requires annual inspection, internally and externally, by the boiler inspection department or by an insurance company, as provided by section 1, chapter 465, Acts of 1907, shall prepare the boiler for inspection by cooling it down (blanking off connections to adjacent boilers, if necessary), removing all soot and ashes from tubes,

Annual
internal
inspec-
tions.

heads, shell, furnace and combustion chamber; drawing off the water; removing the handhole and manhole plates; removing the grate bars from internally fired boilers; and removing the steam gage for testing.

2. If a boiler has not been properly cooled down, or otherwise prepared for inspection, the boiler inspector shall decline to inspect it, and he shall not issue a certificate of inspection until efficient inspection has been made.

3. In making the annual internal and external inspection, as provided by sections 1 and 4, chapter 465, Acts of 1907, the boiler inspector shall apply the hammer test to all internal and external parts of a boiler that are accessible.

4. All proper measurements shall be taken by the boiler inspector, so that the maximum working pressure allowed on a boiler will conform to the rules relating to allowable pressures established by the Board of Boiler Rules; such measurements to be taken and calculations made before a hydrostatic pressure test is applied to a boiler.

5. The steam gage of a boiler shall be tested and its readings compared with an accurate test gage, and if, in the judgment of the boiler inspector, the gage is not reliable, he shall order it repaired or replaced.

SECTION 5.

Annual external inspections. 1. The annual external inspection of a boiler, as provided by section 3, chapter 465, Acts of 1907, should be made at or about six (6) months after the annual internal inspection, except in the case of a boiler that is in service a portion of the year only, in which case the annual external inspection shall be made during such period of service.

2. The boiler inspector shall attach an accurate test gage to a boiler, to note the pressure shown by said test gage, and compare it with that shown by the boiler gage, ordering the boiler gage repaired or replaced if necessary.

3. The boiler inspector shall see that the water glass, gage cocks, water-column connections and water blow-offs are free and clear; also, that the safety valve raises freely from its seat.

4. Fire doors, tube doors and doors in settings shall be opened, to view as far as possible the fire surface, settings, tube ends, blow-off pipes and fusible plug; the boiler inspector to note conditions and order changes or repairs if necessary.

SECTION 6.

Hydrostatic pressure tests. 1. When a boiler is tested by hydrostatic pressure, the maximum pressure applied shall not exceed one and one-half ($1\frac{1}{2}$) times the maximum allowable working pressure; except that twice the maximum allowable working pressure may be applied on

boilers permitted to carry not over twenty-five (25) pounds pressure per square inch, or on pipe boilers.

2. When making annual inspections on boilers constructed wholly of cast-iron, or on pipe boilers, a hydrostatic pressure test of not less than one and one-half ($1\frac{1}{2}$) times and not more than twice the maximum allowable working pressure shall be applied.

3. The boiler inspector, after applying a hydrostatic pressure test, shall thoroughly examine every accessible part of the boiler, both internal and external.

SECTION 7.

1. The efficiency that a unit of length of a riveted joint has to the same unit of length of solid plate shall be calculated as shown by the following examples:—

Efficiency
of joint.

T. S. = tensile strength of plate, in pounds per square inch.

t = thickness of plate, in inches.

b = thickness of butt strap, in inches.

P = pitch of rivets, in inches, on row having greatest pitch.

d = diameter of rivet after driving, in inches.

a = cross-sectional area of rivet after driving, in square inches.

s = strength of rivet in single shear, as given in paragraph 5, section 1, Part II. of these Rules.

S = strength of rivet in double shear, as given in paragraph 5, section 1, Part II. of these Rules.

c = crushing strength of mild steel, as given in paragraph 4, section 1, Part II. of these Rules.

[NOTE. — “ c ” applies only to boilers constructed after Feb. 5, 1910.]

n = number of rivets in single shear in a unit of length of joint.

N = number of rivets in double shear in a unit of length of joint.

2. *Example.* — Lap joint, longitudinal or circumferential, single-riveted.

Lap single-
riveted.

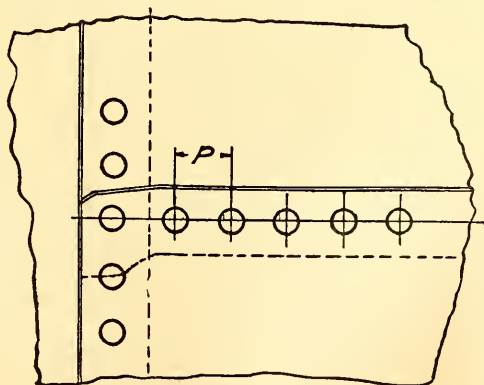


FIG. 2.

A = Strength of solid plate = $P \times t \times T. S.$

B = Strength of plate between rivet holes = $(P - d) t \times T. S.$

C = Shearing strength of one rivet in single shear = $n \times s \times a.$

D = Crushing strength of plate in front of one (1) rivet = $d \times t \times c.$

Divide B, C or D (whichever is the least) by A, and the quotient will be the efficiency of a single-riveted lap joint, as shown in Fig. 2.

T. S. = 55,000 pounds.

$t = \frac{1}{4}'' = .25''.$

$P = 1\frac{5}{8}'' = 1.625''.$

$d = \frac{11}{16}'' = .6875''.$

$a = .3712$ square inches.

$s = 42,000$ pounds.

$c = 95,000$ pounds.

$A = 1.625 \times .25 \times 55,000 = 22,343.$

$B = (1.625 - .6875) .25 \times 55,000 = 12,890.$

$C = 1 \times 42,000 \times .3712 = 15,590.$

$D = .6875 \times .25 \times 95,000 = 16,328.$

$\frac{12,890 (B)}{22,343 (A)} = .576$, Efficiency of joint.

Lap double-riveted.

3. *Example.* — Lap joint, longitudinal or circumferential, double-riveted.

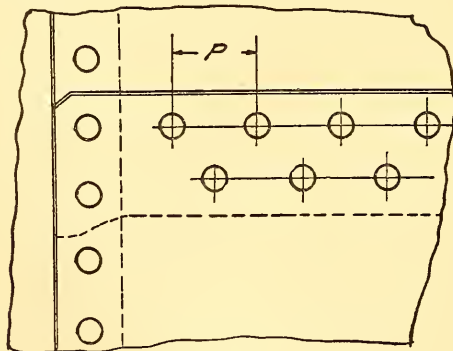


FIG. 3.

A = Strength of solid plate = $P \times t \times T. S.$

B = Strength of plate between rivet holes = $(P - d) t \times T. S.$

C = Shearing strength of two (2) rivets in single shear = $n \times s \times a.$

D = Crushing strength of plate in front of two (2) rivets = $n \times d \times t \times c.$

Divide B, C or D (whichever is the least) by A, and the quotient will be the efficiency of a double-riveted lap joint, as shown in Fig. 3.

T. S. = 55,000 pounds.

$$t = \frac{5}{16}'' = .3125''.$$

$$P = 2\frac{7}{8}'' = 2.875''.$$

$$d = \frac{3}{4}'' = .75''.$$

$$a = .4418 \text{ square inches.}$$

$$s = 42,000 \text{ pounds.}$$

$$c = 95,000 \text{ pounds.}$$

$$A = 2.875 \times .3125 \times 55,000 = 49,414.$$

$$B = (2.875 - .75) .3125 \times 55,000 = 36,523.$$

$$C = 2 \times 42,000 \times .4418 = 37,111.$$

$$D = 2 \times .75 \times .3125 \times 95,000 = 44,531.$$

$$\frac{36,523 (B)}{49,414 (A)} = .739, \text{ Efficiency of joint.}$$

4. *Example.*—Butt and double strap joint, double-riveted.

Butt
double-
riveted.

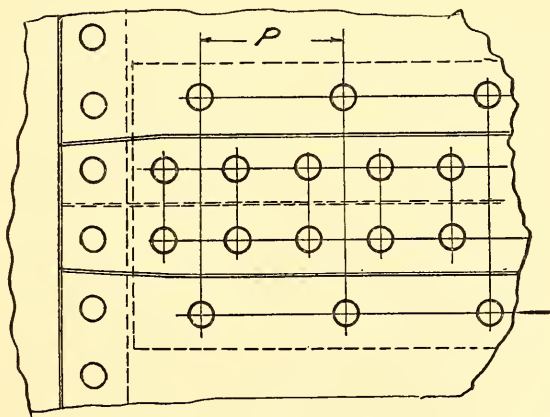


FIG. 4.

A = Strength of solid plate = $P \times t \times \text{T. S.}$

B = Strength of plate between rivet holes in the outer row = $(P - d) t \times \text{T. S.}$

C = Shearing strength of two (2) rivets in double shear, plus the shearing strength of one (1) rivet in single shear = $N \times S \times a + n \times s \times a.$

D = Strength of plate between rivet holes in the second row, plus the shearing strength of one (1) rivet in single shear in the outer row = $(P - 2d) t \times \text{T. S.} + n \times s \times a.$

E = Strength of plate between rivet holes in the second row, plus the crushing strength of butt strap in front of one (1) rivet in the outer row = $(P - 2d) t \times \text{T. S.} + d \times b \times c.$

F = Crushing strength of plate in front of two (2) rivets, plus the crushing strength of butt strap in front of one (1) rivet = $N \times d \times t \times c + n \times d \times b \times c$.

G = Crushing strength of plate in front of two (2) rivets, plus the shearing strength of one (1) rivet in single shear = $N \times d \times t \times c + n \times s \times a$.

Divide B, C, D, E, F or G (whichever is the least) by A, and the quotient will be the efficiency of a butt and double strap joint, double-riveted, as shown in Fig. 4.

$$T. S. = 55,000 \text{ pounds.}$$

$$a = .6013 \text{ square inches.}$$

$$t = \frac{3}{8}'' = .375''.$$

$$s = 42,000 \text{ pounds.}$$

$$b = \frac{5}{16}'' = .3125''.$$

$$S = 78,000 \text{ pounds.}$$

$$P = 4\frac{7}{8}'' = 4.875''.$$

$$c = 95,000 \text{ pounds.}$$

$$d = \frac{7}{8}'' = .875''.$$

Number of rivets in single shear in a unit of length of joint = 1.

Number of rivets in double shear in a unit of length of joint = 2.

$$A = 4.875 \times .375 \times 55,000 = 100,547.$$

$$B = (4.875 - .875) .375 \times 55,000 = 82,500.$$

$$C = 2 \times 78,000 \times .6013 + 1 \times 42,000 \times .6013 = 119,057.$$

$$D = (4.875 - 2 \times .875) .375 \times 55,000 + 1 \times 42,000 \times .6013 = 89,708.$$

$$E = (4.875 - 2 \times .875) .375 \times 55,000 + .875 \times .3125 \times 95,000 = 90,429.$$

$$F = 2 \times .875 \times .375 \times 95,000 + .875 \times .3125 \times 95,000 = 88,320.$$

$$G = 2 \times .875 \times .375 \times 95,000 + 1 \times 42,000 \times .6013 = 87,599.$$

$$\frac{82,500 (B)}{100,547 (A)} = .820, \text{ Efficiency of joint.}$$

Butt triple-riveted.

5. *Example.*—Butt and double strap joint, triple-riveted.

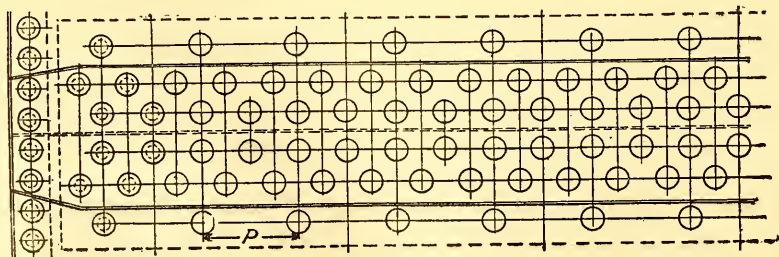


FIG. 5.

A = Strength of solid plate = $P \times t \times T. S.$

B = Strength of plate between rivet holes in the outer row = $(P - d)t \times T. S.$

C = Shearing strength of four (4) rivets in double shear, plus the shearing strength of one (1) rivet in single shear = $N \times S \times a + n \times s \times a.$

D = Strength of plate between rivet holes in the second row, plus the shearing strength of one (1) rivet in single shear in the outer row = $(P - 2d)t \times T. S. + n \times s \times a.$

E = Strength of plate between rivet holes in the second row, plus the crushing strength of butt strap in front of one (1) rivet in the outer row = $(P - 2d)t \times T. S. + d \times b \times c.$

F = Crushing strength of plate in front of four (4) rivets, plus the crushing strength of butt strap in front of one (1) rivet = $N \times d \times t \times c + n \times d \times b \times c.$

G = Crushing strength of plate in front of four (4) rivets, plus the shearing strength of one (1) rivet in single shear = $N \times d \times t \times c + n \times s \times a.$

Divide B, C, D, E, F or G (whichever is the least) by A, and the quotient will be the efficiency of a butt and double strap joint, triple-riveted, as shown in Fig. 5.

T. S. = 55,000 pounds.

a = .5185 square inches.

t = $\frac{3}{8}$ " = .375".

s = 42,000 pounds.

b = $5/16$ " = .3125".

S = 78,000 pounds.

P = $6\frac{1}{2}$ " = 6.5".

c = 95,000 pounds.

d = $1\frac{3}{8}$ " = .8125".

Number of rivets in single shear in a unit of length of joint = 1.

Number of rivets in double shear in a unit of length of joint = 4.

$$A = 6.5 \times .375 \times 55,000 = 134,062.$$

$$B = (6.5 - .8125) .375 \times 55,000 = 117,304.$$

$$C = 4 \times 78,000 \times .5185 + 1 \times 42,000 \times .5185 = 183,549.$$

$$D = (6.5 - 2 \times .8125) .375 \times 55,000 + 1 \times 42,000 \times .5185 = 122,323.$$

$$E = (6.5 - 2 \times .8125) .375 \times 55,000 + .8125 \times .3125 \times 95,000 = 124,667.$$

$$F = 4 \times .8125 \times .375 \times 95,000 + 1 \times .8125 \times .3125 \times 95,000 = 139,902.$$

$$G = 4 \times .8125 \times .375 \times 95,000 + 1 \times 42,000 \times .5185 = 137,558.$$

$$\frac{117,304 (B)}{134,062 (A)} = .875, \text{ Efficiency of joint.}$$

Butt
quadruple-
riveted.

6. *Example.* — Butt and double strap joint, quadruple-riveted.

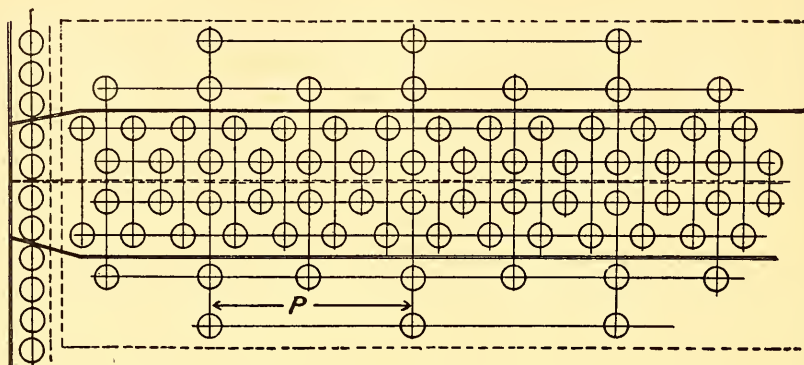


FIG. 6.

A = Strength of solid plate = $P \times t \times T$. S.

B = Strength of plate between rivet holes in the outer row = $(P-d)t \times T$. S.

C = Shearing strength of eight (8) rivets in double shear, plus the shearing strength of three (3) rivets in single shear = $N \times S \times a + n \times s \times a$.

D = Strength of plate between rivet holes in the second row, plus the shearing strength of one (1) rivet in single shear in the outer row = $(P-2d)t \times T$. S. + $n \times s \times a$.

E = Strength of plate between rivet holes in the third row, plus the shearing strength of two (2) rivets in the second row in single shear and one (1) rivet in single shear in the outer row = $(P-4d)t \times T$. S. + $n \times s \times a$.

F = Strength of plate between rivet holes in the second row, plus the crushing strength of butt strap in front of one (1) rivet in the outer row = $(P-2d)t \times T$. S. + $d \times b \times c$.

G = Strength of plate between rivet holes in the third row, plus the crushing strength of butt strap in front of two (2) rivets in the second row and one (1) rivet in the outer row = $(P-4d)t \times T$. S. + $n \times d \times b \times c$.

H = Crushing strength of plate in front of eight (8) rivets, plus the crushing strength of butt strap in front of three (3) rivets = $N \times d \times t \times c + n \times d \times b \times c$.

I = Crushing strength of plate in front of eight (8) rivets, plus the shearing strength of two (2) rivets in the second row and one (1) rivet in the outer row, in single shear = $N \times d \times t \times c + n \times s \times a$.

Divide B, C, D, E, F, G, H or I (whichever is the least) by A, and the quotient will be the efficiency of a butt and double strap joint quadruple-riveted, as shown in Fig. 6.

T. S. = 55,000 pounds.

$t = \frac{1}{2}'' = .5''$.

$b = \frac{7}{16}'' = .4375''$.

$P = 15''$.

$d = \frac{15}{16}'' = .9375''$.

$a = .6903$ square inches.

$s = 42,000$ pounds.

$S = 78,000$ pounds.

$c = 95,000$ pounds.

Number of rivets in single shear in a unit of length of joint = 3.

Number of rivets in double shear in a unit of length of joint = 8.

$$A = 15 \times .5 \times 55,000 = 412,500.$$

$$B = (15 - .9375) .5 \times 55,000 = 386,718.$$

$$C = 8 \times 78,000 \times .6903 + 3 \times 42,000 \times .6903 = 517,723.$$

$$D = (15 - 2 \times .9375) .5 \times 55,000 + 1 \times 42,000 \times .6903 = 389,930.$$

$$E = (15 - 4 \times .9375) .5 \times 55,000 + 3 \times 42,000 \times .6903 = 396,353.$$

$$F = (15 - 2 \times .9375) .5 \times 55,000 + .9375 \times .4375 \times 95,000 = 399,902.$$

$$G = (15 - 4 \times .9375) .5 \times 55,000 + 3 \times .9375 \times .4375 \times 95,000 = 426,269.$$

$$H = 8 \times .9375 \times .5 \times 95,000 + 3 \times .9375 \times .4375 \times 95,000 = 473,145.$$

$$I = 8 \times .9375 \times .5 \times 95,000 + 3 \times 42,000 \times .6903 = 443,229.$$

$$\frac{386,718 (B)}{412,500 (A)} = .937, \text{ efficiency of joint.}$$

SECTION 8.

1. The standard size of the certificate of inspection, as authorized by section 26, chapter 465, Acts of 1907, shall be eleven (11) inches in width and eight and one-half (8½) inches in length, and shall be made up and worded in accordance with the following copy, space having been provided for the insertion of the State Boiler Inspection Department or the name of the insurance company using the same:

Form
of certifi-
cate.

Commonwealth of Massachusetts

ANNUAL CERTIFICATE

OF STEAM BOILER INSPECTION

As required by Chapter 465, Acts of 1907

[SPACE FOR COMPANY'S NAME OR STATE BOILER INSPECTION DEPARTMENT]

Boiler No. _____

Date of Inspection _____ 19

This is to Certify that the herein-described steam boiler inspected by

[SPACE FOR COMPANY'S NAME OR STATE BOILER INSPECTION DEPARTMENT]

may be operated at a Pressure not to exceed _____ pounds per square inch.

Name of owner _____	Type of boiler _____
Location of boiler _____	
Age in years _____	Built by _____
Length of shell or drum _____ ft. _____ in.	Diameter of shell or drum _____ in.
Lowest tensile strength of shell plates _____ lbs. per sq. in.	Number and size of tubes _____
Thickness of shell plates _____ in.	Thickness of heads _____ in.
Style of longitudinal joint in shell or drum _____	
Percentage of strength of longitudinal joint _____	Location of fusible plug _____

[COMPANY'S NAME OR STATE BOILER INSPECTION DEPARTMENT]

Signature _____

[FAC. SEAL OF EXECUTIVE OFFICE'S OR CHIEF INSPECTOR'S SIGNATURE]

Inspector of Boilers.

[OFFICE]

Is accordance with Section 21, Chapter 465, Acts of 1907, notify this Department at once if any defect is discovered.

POST UNDER GLASS IN CONSPICUOUS PLACE IN ENGINE OR BOILER ROOM.

**Certifi-
cate not
to be re-
moved.**

2. The certificate of inspection shall be posted under glass in a conspicuous place in the engine or boiler room in which the boiler specified therein is located; and it shall not be removed therefrom except the boiler or its appendages become defective, or a new certificate is issued, when it shall be removed by a member of the boiler inspection department of the district police, or an inspector holding a certificate of competency as an inspector of steam boilers, as provided by section 6, chapter 465, Acts of 1907.

PART III.

These Rules, in addition to the Rules contained in Part II., apply to boilers installed after May 1, 1908.

SECTION 1.

Open-Hearth Boiler Plate and Rivet Steel.

1. Steel shall be made by the open-hearth process, and will be considered as manufactured by the basic method unless the report of test states that the acid method has been used. **Process.**

2. All plates and rivets used in the construction of steel shells or drums of boilers shall be as specified by the American Society for Testing Materials, adopted 1901. **Steel plates and rivets.**

Chemical Properties.

3. There shall be three classes of open-hearth boiler plate and rivet steel, namely, Flange or Boiler Steel, Fire-box Steel and Extra Soft Steel, which shall conform to the following limits in chemical composition:— **Chemical properties.**

	Flange or Boiler Steel (Per Cent.).	Fire-Box Steel (Per Cent.).	Extra Soft Steel (Per Cent.).
Phosphorus shall not exceed . . . }	Acid, 0.06	Acid, 0.04	Acid, 0.04
Sulphur shall not exceed . . . }	Basic, 0.04	Basic, 0.03	Basic, 0.04
Manganese, ...	0.05	0.04	0.04
	0.30 to 0.60	0.30 to 0.50	0.30 to 0.50

4. Steel for boiler rivets shall be of the Extra Soft class, as specified in paragraphs Nos. 3 and 5 of this section. **Boiler rivet steel.**

Physical Properties.

5. The three classes of open-hearth boiler plate and rivet steel — namely, Flange or Boiler Steel, Fire-box Steel and Extra Soft Steel — shall conform to the following physical qualities:— **Physical properties.**

	Flange or Boiler Steel.	Fire-Box Steel.	Extra Soft Steel.
Tensile strength, pounds per square inch, ...	55,000 to 65,000	52,000 to 62,000	45,000 to 55,000
Yield point, in pounds per square inch, shall not be less than	½ T. S.	½ T. S.	½ T. S.
Elongation per cent. in 8 inches shall not be less than	25	26	28

**Modifica-
tions in
elongation
for thin
and thick
material.**

6. For material less than five-sixteenths ($\frac{5}{16}$) inch and more than three-fourths ($\frac{3}{4}$) inch in thickness the following modifications shall be made in the requirements for elongation:—

(a) For each increase of one-eighth ($\frac{1}{8}$) inch in thickness above three-fourths ($\frac{3}{4}$) inch a deduction of one (1) per cent. shall be made from the specified elongation.

(b) For each decrease of one-sixteenth ($\frac{1}{16}$) inch in thickness below five-sixteenths ($\frac{5}{16}$) inch a deduction of two and one-half ($2\frac{1}{2}$) per cent. shall be made from the specified elongation.

**Bending
tests.**

7. The three classes of open-hearth boiler plate and rivet steel shall conform to the following bending tests; and for this purpose the test specimen shall be one and one-half ($1\frac{1}{2}$) inches wide, if possible, and for all material three-fourths ($\frac{3}{4}$) inch or less in thickness the test specimen shall be of the same thickness as that of the finished material from which it is cut, but for material more than three-fourths ($\frac{3}{4}$) inch thick the bending test specimen may be one-half ($\frac{1}{2}$) inch thick.

Rivet rounds shall be tested of full size as rolled.

(c) Test specimens cut from the rolled material, as specified above, shall be subjected to a cold bending test and also to a quenched bending test. The cold bending test shall be made on the material in the condition in which it is to be used, and prior to the quenched bending test the specimen shall be heated to a light cherry red, as seen in the dark, and quenched in water, the temperature of which is between 80° and 90° Fahrenheit.

(d) Flange or boiler steel, fire-box steel and rivet steel, both before and after quenching, shall bend cold one hundred and eighty (180) degrees flat on itself without fracture on the outside of the bent portion.

**Homoge-
neity tests.**

8. For fire-box steel a sample taken from a broken tensile test specimen shall not show any single seam or cavity more than one-fourth ($\frac{1}{4}$) inch long in either of the three fractures obtained on the test for homogeneity, as described in paragraph No. 13 of this section.

*Test Pieces and Methods of Testing.***Test speci-
men for
tensile
test.**

9. The standard test specimen of eight (8) inch gaged length shall be used to determine the physical properties specified in paragraphs Nos. 5 and 6 of this section. The standard shape of the test specimen for sheared plates shall be as shown in Fig. 7.

For other material the test specimen may be the same as for sheared plates, or it may be planed or turned parallel throughout its entire

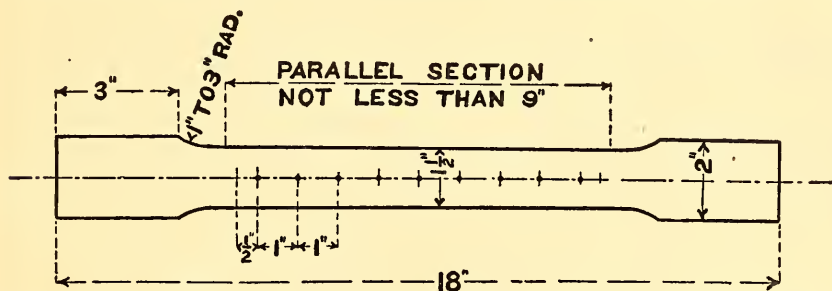
length; and in all cases, where possible, two opposite sides of the test specimens shall be the rolled surfaces. Rivet rounds and small rolled bars shall be tested of full size as rolled.

10. One tensile test specimen will be furnished from each plate as it is rolled, and two tensile test specimens will be furnished from each melt of rivet rounds. In case any of these develops flaws or breaks outside of the middle third of its gaged length, it may be discarded and another test specimen substituted therefor.

Number
of tensile
tests.

11. For material three-fourths ($\frac{3}{4}$) inch or less in thickness the bending test specimen shall have the natural rolled surface on two opposite sides. The bending test specimens cut from plates shall be one and one-half ($1\frac{1}{2}$) inches wide, and for material more than three-fourths ($\frac{3}{4}$) inch thick the bending test specimen may be one-

Test
specimens
for
bending.



Standard Test Specimen of 8" Gaged Length, Piece to be of Same Thickness as Plate.

FIG. 7.

half ($\frac{1}{2}$) inch thick. The sheared edges of bending test specimens may be milled or planed. The bending test specimens for rivet rounds shall be of full size as rolled. The bending tests may be made by pressure or by blows.

12. One cold bending specimen and one quenched bending specimen will be furnished from each plate as it is rolled. Two cold bending specimens and two quenched bending specimens will be furnished from each melt of rivet rounds. The homogeneity test for fire-box steel shall be made on one of the broken tensile test specimens.

Number
of bending
tests.

13. The homogeneity test for fire-box steel is made as follows: A portion of the broken tensile test specimen is either nicked with a chisel or grooved on a machine, transversely about one sixteenth ($\frac{1}{16}$) of an inch deep, in three places about two (2) inches apart. The first groove should be made on one side two (2) inches from the square end of the specimen; the second, two (2)

Homoge-
neity tests
for fire-
box steel.

inches from it on the opposite side; the third, two (2) inches from the last, and on the opposite side from it. The test specimen is then put in a vise, with the first groove about one-fourth ($\frac{1}{4}$) of an inch above the jaws, care being taken to hold it firmly. The projecting end of the test specimen is then broken off by means of a hammer, a number of light blows being used, and the bending being away from the groove. The specimen is broken at the other two grooves in the same way. The object of this treatment is to open and render visible to the eye any seams due to failure to weld up, or to foreign interposed matter or cavities due to gas bubbles in the ingot. After rupture, one side of each fracture is examined, a pocket lens being used, if necessary, and the length of the seams and cavities is determined.

Yield point.

14. For the purposes of this specification the yield point shall be determined by the careful observation of the drop of the beam or halt in the gage of the testing machine.

Sample for chemical analysis.

15. In order to determine if the material conforms to the chemical limitations prescribed in paragraph No. 3 of this section, analysis shall be made of drillings taken from a small test ingot. An additional check analysis may be made from a tensile specimen of each melt used on an order, other than in locomotive fire-box steel. In the case of locomotive fire-box steel a check analysis may be made from the tensile specimen from each plate as rolled.

Variation in Weight.

Variation in weight.

16. The variation in cross section of weight of more than $2\frac{1}{2}$ per cent. from that specified will be sufficient cause for rejection, except in the case of sheared plates, which will be covered by the following permissible variations:—

(e) Plates $12\frac{1}{2}$ pounds per square foot or heavier, up to 100 inches wide, when ordered to weight, shall not average more than $2\frac{1}{2}$ per cent. variation above or $2\frac{1}{2}$ per cent. below the theoretical weight; when 100 inches wide and over, 5 per cent. above or 5 per cent. below the theoretical weight.

(f) Plates under $12\frac{1}{2}$ pounds per square foot, when ordered to weight, shall not average a greater variation than the following:—Up to 75 inches wide, $2\frac{1}{2}$ per cent. below the theoretical weight; 75 inches wide up to 100 inches wide, 5 per cent. below the theoretical weight; when 100 inches wide and over, 10 per cent. above or 3 per cent. below the theoretical weight.

(g) For all plates ordered to gage there will be permitted an average excess of weight over that corresponding to the dimensions on the order equal in amount to that specified in the following table:—

TABLE OF ALLOWANCES FOR OVERWEIGHT FOR RECTANGULAR
PLATES WHEN ORDERED TO GAGE.

[Plates will be considered up to gage if measuring not over 1-100 inch less than the ordered gage.
The weight of 1 cubic inch of rolled steel is assumed to be .2833 pound.]

Plates 1-4 Inch and Over in Thickness.

Thickness of Plate (Inch).	Width of Plate.		
	Up to 75 Inches (Per Cent.).	75 to 100 Inches (Per Cent.).	Over 100 Inches (Per Cent.).
1/4	10	14	18
5/16	8	12	16
3/8	7	10	13
7/16	6	8	10
1/2	5	7	9
9/16	4 1/2	6 1/2	8 1/2
5/8	4	6	8
Over 5/8	3 1/2	5	6 1/2

Finish.

17. All finished material shall be free from injurious surface defects and laminations, and must have a workman-like finish. **Finish.**

Plate Manufacturer to stamp Plates and Heads.

18. Each plate shall be distinctly stamped by the manufacturer with the heat number. **Plates to be stamped.**

19. Each plate shall be distinctly stamped by the manufacturer in at least five places in the following manner: At the four corners, at a distance of about twelve (12) inches from the edges, and at or near the center of the plate, with the name of the manufacturer, place where manufactured, brand and lowest tensile strength.

20. Each head shall be distinctly stamped by the manufacturer on each side with the name of the manufacturer, place where manufactured, brand and lowest tensile strength; stamps to be so located as to be plainly visible when the head is finished. **Heads to be stamped.**

SECTION 2.

Material to be used.

1. Shells, drums and butt straps shall be of **Open-Hearth Fire-box Steel**, as specified in paragraphs Nos. 3 and 5, section 1, Part III. of these Rules. **Shell plates.**

2. Heads, combustion chambers, furnaces, or any plates that require staying or flanging, shall be of **Open-hearth** **Heads.**

Flange, Fire-box or Extra Soft Steel, as specified in paragraphs Nos. 3 and 5, section 1, Part III. of these Rules.

Rivets. 3. Rivets shall be of Open-hearth Extra Soft Steel, as specified in paragraphs Nos. 3 and 5, section 1, Part III. of these Rules.

Cast steel. 4. Cast steel for use in boiler and steam superheater mountings, manhole frames, steam pipe, fittings, side lugs, or any other parts of boilers or superheaters where cast steel is used, shall not have less than fifty thousand (50,000) pounds tensile strength.

Cast iron. 5. Cast iron for use in boiler mountings, steam pipe fittings, side lugs, or any other parts of boilers where cast iron is permitted to be used, shall not have less than eighteen thousand (18,000) pounds tensile strength.

Cross pipes and cross boxes. 6. Cross pipes connecting the steam and water drums of water-tube boilers, and cross boxes, shall be of wrought or cast steel when the working pressure exceeds one hundred and sixty (160) pounds per square inch.

Mud drums. 7. Mud drums of water-tube boilers shall be of wrought or cast steel when the working pressure exceeds one hundred and sixty (160) pounds per square inch.

Super-heaters. 8. Pressure parts of superheaters, attached to boilers or separately fired, shall be of wrought or cast steel when the working pressure exceeds fifty (50) pounds per square inch.

9. Boiler and superheater mountings, such as nozzles, cross pipes, steam pipes, fittings, valves and their bonnets shall be of wrought or cast steel when exposed to steam which is superheated over 80° Fahrenheit.

Leg and door frame rings. 10. Waterleg and door frame rings of vertical fire-tube boilers thirty-six (36) inches or over in diameter, shall be of wrought or cast steel, or wrought iron.

11. Waterleg and door frame rings of locomotive type boilers shall be wrought or cast steel, or wrought iron.

SECTION 3.

Stamps to be visible. 1. In laying out shell plates, furnace sheets and heads in the boiler shop, care shall be taken to leave at least one of the stamps, specified in paragraphs 19 and 20, section 1, Part III. of these Rules, so located as to be plainly visible when the boiler is completed; except that the tube sheets of a vertical fire-tube boiler shall have a portion, at least, of such stamps visible sufficient for identification when the boiler is completed.

Boiler to be stamped. 2. Each boiler shall conform in every detail with the Rules formulated by this Board, and shall be distinctly stamped

with the words MASSACHUSETTS STANDARD, abbreviated to read MASS. STD., by a member of the boiler inspection department of the district police, or an inspector holding a certificate of competency as an inspector of steam boilers, as provided by section 6, chapter 465, Acts of 1907, and who is not, directly or indirectly, interested in the manufacture or sale of steam boilers, but in the employ of an insurance company authorized to insure boilers in this Commonwealth. Each boiler shall be stamped by the builder, in the presence of the inspector, with a serial number and with the name of the builder either in full or abbreviated, and the builder shall submit a fac-simile of his proposed style of stamping to this Board for approval. The height of letters and figures used in stamping shall not be less than one-fourth ($\frac{1}{4}$) inch.

3. In numbering serially, each builder shall commence with the number one (1) and continue numbering in consecutive order.

**Serial
numbers.**

4. A data report, on forms to be furnished by the boiler inspection department of the district police, shall be forwarded by the builder to the chief inspector of such department for each boiler stamped MASS. STD., before the boiler is shipped from the boiler shop.

**Data
reports.**

5. Location of stamps to be as follows:—

**Location of
stamps.**

(a) On Horizontal Return Tubular Boilers—on the front head, above the central rows of tubes.

(b) On Horizontal Flue Boilers—on the front head, above the flues.

(c) On Locomotive Type or Star Water-tube Boilers—on the furnace end, above the handhole.

(d) On Vertical Fire and Vertical Submerged Tube Boilers—on the shell, above the furnace door.

(e) On Water-tube Boilers, Babcox & Wilcox, Stirling, Heine and Robb-Mumford Standard Types—on a head above the manhole opening, preferably on the flanging of the manhole opening.

(f) On Vertical Boilers, Climax or Hazelton Type—on the top head.

(g) On Cahall Vertical Water Tube Boilers—on the upper drum, above the manhole opening.

(h) On Scotch Marine Boilers—on the front head, above the centre or right-hand furnace.

(i) On Economic Boilers—on the rear head, above the central rows of tubes.

(j) For other types and new designs—in a location to be approved by this Board.

Stamps
not to be
covered.

6. The boiler builder's stamp shall not be covered by insulating or other material.

Construc-
tion inspec-
tion.

7. All boiler shops in which boilers are constructed for installation in this Commonwealth shall be open to the members of the boiler inspection department of the district police and inspectors holding certificates of competency as inspectors of steam boilers, as provided by section 6, chapter 465, Acts of 1907, at all reasonable hours, for inspection of material, methods of manufacture, workmanship and testing.

SECTION 4.

To deter-
mine maxi-
mum
allowable
pressure.

1. The maximum pressure to be allowed on a steel or wrought-iron shell or drum of a boiler shall be determined from the minimum thickness of the shell plates, the lowest tensile strength stamped on the plates by the plate manufacturer, the efficiency of the longitudinal joint or ligament between the tube holes, whichever is the least, the inside diameter of the outside course, and a factor of safety of not less than five (5), the formula being:—

$\frac{T.S. \times t \times \%}{R \times F.S.} = \text{maximum allowable working pressure per square inch, in pounds.}$

T.S. = tensile strength of shell plates, in pounds.

t = minimum thickness of shell plates, in inches.

% = efficiency of longitudinal joint or ligament between tube holes, whichever is the least.

R = radius = one-half ($\frac{1}{2}$) the inside diameter of the outside course of the shell or drum.

F.S. = 5, the lowest factor of safety allowed on boilers installed after May 1, 1908.

When it is desired to construct a boiler of special material, the case shall be submitted to this Board for approval.

NOTE. — The method of determining the efficiency of longitudinal joint is given in section 7 Part II., and of determining the efficiency of ligament between tube holes in the following paragraphs.

Ligament
between
parallel
tube holes.

2. Efficiency of ligament: when a shell or drum is drilled for tube holes in a line parallel to the axis of the shell or drum, the efficiency of the ligament between the tube holes shall be determined as follows:—

(a) When the pitch of tube holes on every row is equal, the formula is:—

$\frac{p-d}{p} = \text{efficiency of ligament.}$

p

p = pitch of tube holes, in inches.

d = diameter of tube holes, in inches.

Example.

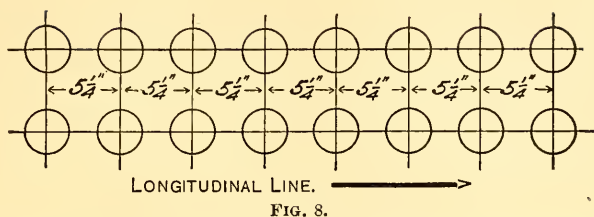


FIG. 8.

Pitch of tube holes in the drum of a water-tube boiler = $5\frac{1}{4}" = 5.25"$.
 Diameter of tube holes = $3\frac{1}{4}" = 3.25"$.

$$\frac{p-d}{p} = \frac{5.25-3.25}{5.25} = .38, \text{ Efficiency of ligament.}$$

(b) When the pitch of tube holes on any one row is unequal, the formula is:—

$$\frac{P-nd}{P} = \text{efficiency of ligament.}$$

P = unit length of ligament, in inches.

n = number of tube holes in length, P.

d = diameter of tube holes, in inches.

Example.

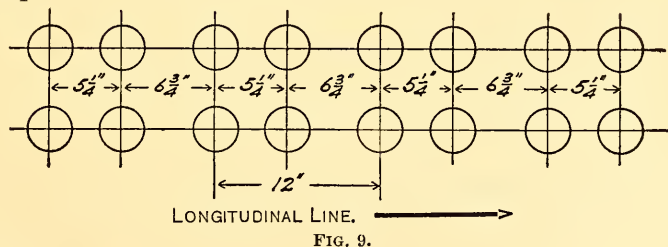


FIG. 9.

$$\frac{P-nd}{P} = \frac{12-2 \times 3.25}{12} = .458, \text{ Efficiency of ligament.}$$

Example.

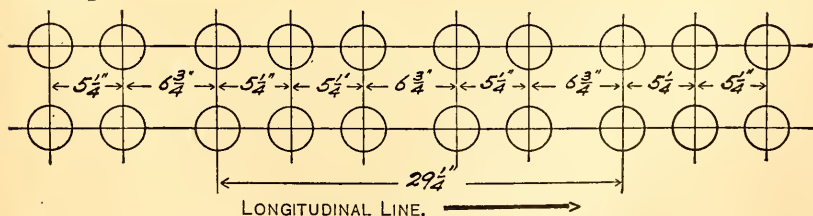


FIG. 10.

$$\frac{P-nd}{P} = \frac{29.25-5 \times 3.25}{29.25} = .444, \text{ Efficiency of ligament.}$$

Ligament
between
diagonal
tube holes.

3. When a shell or drum is drilled for tube holes in a line diagonal with the axis of the shell or drum, the efficiency of the ligament between the tube holes shall be determined as follows:—

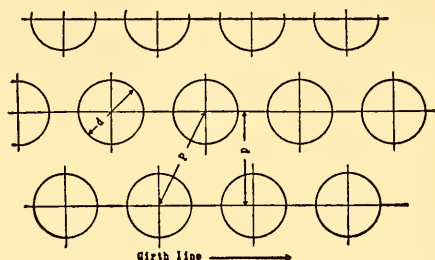


FIG. 11.

$$\frac{P-d}{p} = \text{efficiency of ligament.}$$

P = diagonal pitch of tube holes, in inches.

d = diameter of tube holes, in inches.

p = distance between rows of tubes, longitudinally.

Example.

Diagonal pitch of tube holes in the drum of a water tube boiler = 6.42".

Diameter of tube holes = 4".

Distance between rows of tubes, longitudinally = 5.75".

$$\frac{6.42-4}{5.75} = .42, \text{ Efficiency of ligament.}$$

Staying
heads H. T.
boiler by
steel
angles.
Pressure
not to ex-
ceed 100
pounds.

4. When the shell of a horizontal return tubular boiler does not exceed thirty-six (36) inches in diameter, and is designed for a maximum working pressure not to exceed one hundred (100) pounds per square inch, the segment of head above the tubes *may* be stayed by steel angles, or Tee bars, the formula being:—

$$\frac{fI}{y} = M.$$

f = fiber stress = 16,000 pounds.

I = moment of inertia = $\frac{bh^3}{12}$.

$\left\{ \begin{array}{l} h = \text{height of beam, in inches.} \\ b = \text{thickness of beam, in inches.} \end{array} \right\}$

y = distance of most strained fiber = $h \div 2$.

M = bending moment of beam.

Maximum bending moment for uniform load = $\frac{WL}{8}$.

$\left\{ \begin{array}{l} W = \text{weight to be supported, in pounds.} \\ L = \text{length of beam, in inches.} \end{array} \right\}$

5. The longitudinal joints of a boiler, the shell or drum of which *exceeds* thirty-six (36) inches in diameter, shall be of butt and double strap construction. **Longitudinal joints.**

6. The longitudinal joints of a boiler, the shell or drum of which *does not exceed* thirty-six (36) inches in diameter, *may* be of lap-riveted construction; and the maximum pressure allowed on such shells or drums shall not exceed one hundred (100) pounds per square inch.

7. Any form of longitudinal joint, other than specified in paragraphs 5 and 6 of this section, shall be submitted to this Board for approval.

8. The longitudinal joints of horizontal return tubular boilers shall be located above the fire-line of the setting.

9. A horizontal return tubular, vertical tubular, or locomotive type boiler shall not have a continuous longitudinal joint over twelve (12) feet in length.

10. The thickness of plates in a shell or drum shall be of the same gage. **Thickness of plates.**

11. The minimum thickness of plates used in the construction of a boiler shall be one-fourth ($\frac{1}{4}$) inch. **Thickness of shell plates.**

12. The minimum thickness of shell plates shall be as follows:—

When the Diameter of Shell is —			
36" or Under.	Over 36" to 54" Inclusive.	Over 54" to 72" Inclusive.	Over 72".
$\frac{1}{4}$ "	$\frac{5}{16}$ "	$\frac{3}{8}$ "	$\frac{1}{2}$ "

13. The minimum thickness of butt straps shall be as follows:— **Thickness of butt straps.**

Thickness of Shell Plates.	Minimum Thickness of Butt Straps.	Thickness of Shell Plates.	Minimum Thickness of Butt Straps.
$\frac{1}{4}$ "	$\frac{1}{4}$ "	$\frac{17}{32}$ "	$\frac{7}{16}$ "
$\frac{9}{32}$ "	$\frac{1}{4}$ "	$\frac{9}{16}$ "	$\frac{7}{16}$ "
$\frac{5}{16}$ "	$\frac{1}{4}$ "	$\frac{5}{8}$ "	$\frac{1}{2}$ "
$\frac{11}{32}$ "	$\frac{1}{4}$ "	$\frac{3}{4}$ "	$\frac{1}{2}$ "
$\frac{3}{8}$ "	$\frac{5}{16}$ "	$\frac{7}{8}$ "	$\frac{5}{8}$ "
$\frac{13}{32}$ "	$\frac{5}{16}$ "	1 "	$\frac{3}{4}$ "
$\frac{7}{16}$ "	$\frac{3}{8}$ "	$1\frac{1}{8}$ "	$\frac{3}{4}$ "
$\frac{15}{32}$ "	$\frac{3}{8}$ "	$1\frac{1}{4}$ "	$\frac{7}{8}$ "
$\frac{1}{2}$ "	$\frac{7}{16}$ "		

14. Butt straps shall be rolled or formed to the proper curvature on forms made for that purpose. **Butt straps.**

15. The minimum thickness of tube sheets shall be as follows:— **Thickness of tube sheets.**

When the Diameter of Tube Sheet is —			
42" or Under.	Over 42" to 54" Inclusive.	Over 54" to 72" Inclusive.	Over 72".
$\frac{3}{8}"$	$\frac{7}{16}"$	$\frac{1}{2}"$	$\frac{9}{16}"$

Bumped heads.

16. The minimum thickness of a convex head shall be determined by the following formula:—

$$\frac{R \times F. S. \times P}{T. S.} = t.$$

The minimum thickness of a concave head shall be determined by the following formula:—

$$\frac{R \times F. S. \times P}{.6 (T. S.)} = t.$$

R = one-half the radius to which the head is bumped.

F. S. = 5 = factor of safety.

P = working pressure, in pounds per square inch, for which the boiler is designed.

T. S. = tensile strength, in pounds per square inch, stamped on the head by the manufacturer.

t = thickness of head in inches.

17. When a convex or concave head has a manhole opening, the thickness as found by the formula in paragraph 16 of this section shall be increased by not less than one-eighth ($\frac{1}{8}$) inch.

18. When a convex or concave head has a manhole opening, the flange shall be turned inward, and to a depth of not less than three (3) times the thickness of the head.

Stayed flat surfaces.

19. The minimum thickness of plates in stayed flat surface construction shall be five-sixteenths ($\frac{5}{16}$) inch.

Ends of stay-bolts.

20. The ends of stay-bolts shall be riveted over or upset by equivalent process.

Pitch of stay-bolts.

21. The pitch allowed for stay-bolts on a flat surface and on the furnace sheet of an internally fired boiler in which the external diameter of the furnace is over thirty-eight (38) inches, except a corrugated furnace or a furnace strengthened by an Adamson ring or equivalent, shall not exceed that given in the following table:—

Table of Maximum Allowable Pitch, in Inches, of Screwed Stay-bolts, Ends Riveted Over.

Pressure, in Pounds per Square Inch.	Thickness of Plate.						
	5⁄16"	3⁄8"	7⁄16"	1⁄2"	9⁄16"	5⁄8"	11⁄16"
	Maximum Pitch of Stay-bolts, in Inches.						
100, ...	5½	6¼	7	7¾	8½	—	—
110, ...	5¼	6	6¾	7¾	8½	—	—
120, ...	5⅓	5¾	6½	7½	7¾	8½	—
125, ...	5	5⅝	6⅝	7	7¾	8¾	—
130, ...	5	5⅝	6¼	6⅞	7⅝	8¼	—
140, ...	4¾	5½	6	6⅝	7⅝	8	—
150, ...	4¾	5¼	5⅞	6½	7½	7¾	8¾
160, ...	4⅝	5⅓	5¾	6¼	6⅞	7½	8
170, ...	4½	5	5⅝	6⅓	6¾	7¼	7⅞
180, ...	4⅜	4⅞	5½	6	6½	7⅓	7¾
190, ...	4⅜	4⅞	5⅜	5⅞	6⅜	7	7½
200, ...	4¼	4¾	5¼	5¾	6¼	6¾	7¾
225, ...	4⅓	4½	5	5½	6	6½	7
250, ...	4	4⅝	4¾	5¼	5¾	6¼	6⅝
300, ...	3¾	4⅓	4½	4⅞	5⅝	5¾	6⅓

When the maximum allowable pitch is five and one-half (5½) inches or less, the stay-bolts adjacent to a furnace door or other boiler fitting, hand hole or other opening, may have an increased pitch of not over one (1) inch.

When a pitch not exceeding eight and one-half (8½) inches is required and is not given in the table, the following formula shall be used:—

$$S = \sqrt{\frac{C \times (t + 1)^2}{P}} + 6, \quad P = \frac{C (t + 1)^2}{S^2 - 6}, \quad t = \sqrt{\frac{P (S^2 - 6)}{C}} - 1.$$

S = maximum pitch of stay-bolts, in inches.
C = a constant = 66.
t = thickness of plate, in *sixteenths* of an inch.
P = working pressure per square inch, in pounds.

When hollow stay-bolts are used, having the hole one-half (½) inch in diameter or over, the maximum allowable pitch given in the above table may be increased by the mean diameter of the stay-bolt:—

Mean diameter of stay-bolt
=
$$\frac{\text{least outside diameter of stay-bolt} + \text{diameter of hole in stay-bolt}}{2}.$$

22. An internally fired boiler, in which the external diameter of the furnace is thirty-eight (38) inches or less, except a corrugated furnace or a furnace strengthened by an Adamson ring or equivalent, shall have the furnace sheet supported by one

Hollow stay-bolts.
Pitch of stay-bolts, V. T. boilers.

External diameter of furnace not exceeding 32".	Pressure, in Pounds per Square Inch.					
	100	110	120	125	130	140
	Longitudinal Pitch of Stay-bolts, in Inches, not to exceed —					
Thickness of furnace sheet $\frac{5}{16}$ ".	11 $\frac{3}{4}$	9 $\frac{3}{4}$	8 $\frac{1}{8}$	7 $\frac{5}{8}$	7	6
	Diameter of stay-bolts over threads shall not be less than seven-eighths ($\frac{7}{8}$) inch.					

External Diameter of furnace not exceeding 38".	Pressure, in Pounds per Square Inch.				
	100	110	120	125	130
	Longitudinal Pitch of Stay-bolts, in Inches, not to exceed —				
Thickness of furnace sheet $\frac{5}{16}$ ".	8 $\frac{3}{8}$	7	5 $\frac{7}{8}$	5 $\frac{3}{8}$	5
	Diameter of stay-bolts over threads shall not be less than seven-eighths ($\frac{7}{8}$) inch.				

24. When a pitch of stay-bolts is required for a pressure higher than given in the tables, paragraph 23 of this section, the furnace sheet shall be stay-bolted as a flat surface, as shown in the table, paragraph 21 of this section.

25. In a vertical fire-tube boiler the height of furnace shall be measured from the center of rivets at the bottom of the waterleg to the center of rivets in lower tube sheet, and the pitch of stay-bolts shall be measured at the furnace sheet.

Measure-
ment of
height of
furnace,
V. T.
boilers.

26. When the longitudinal joint of the furnace sheet of a vertical fire-tube boiler is of lap-riveted construction, a stay-bolt in each row shall be located near the longitudinal joint, as shown in Fig. 14.

Longitu-
dinal joint
of furnace
sheet, V. T.
boilers.

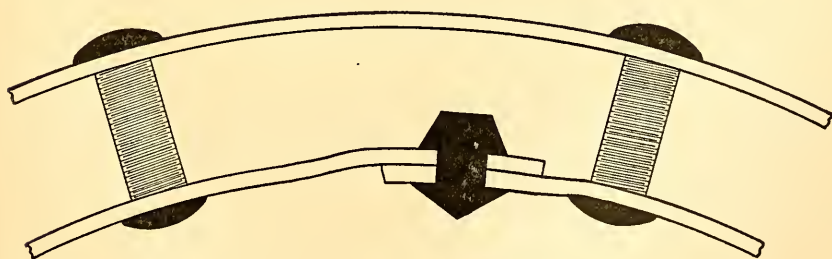


FIG. 14.

27. A segment of a head of a horizontal return tubular, locomotive, Scotch or similar type boiler shall be stayed by welded or weldless mild steel or wrought iron, head to head

Staying
segments
of heads.

or through, diagonal or crow-foot stays, except a horizontal return tubular boiler, as provided in paragraph 4 of this section.

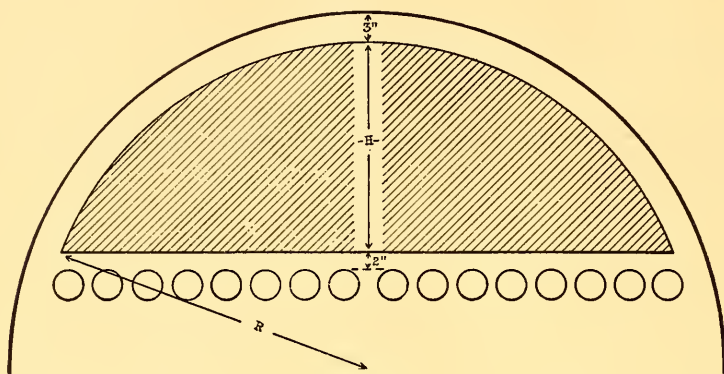


FIG. 15.

Areas of
segments
of heads to
be stayed.

28. The area of a segment of a head to be stayed shall be the area enclosed by lines drawn three (3) inches from the shell and two (2) inches from the tubes, as shown in Figs. 15 and 16 of these Rules.

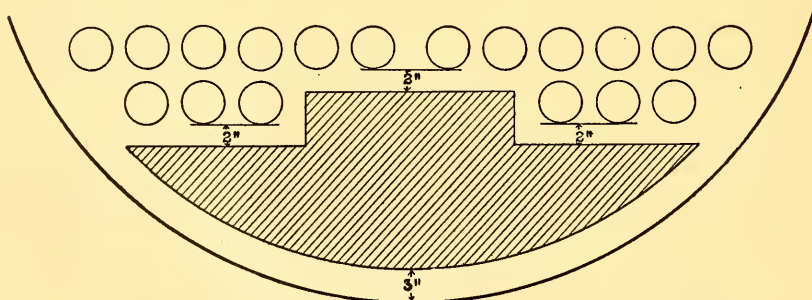


FIG. 16.

Table of
areas of
segments.

29. The following table gives the net area, in square inches, of any segment of a head to be stayed, as shown in Fig. 15.

Height from Tubes to Shell.	DIAMETER OF BOILER.												
	24"	30"	36"	42"	48"	54"	60"	66"	72"	78"	84"	90"	96"
	Area to be stayed, in Square Inches.												
8"	28	33	37	40	43	47	51	53	55	58	60	63	65
8½"	35	41	46	51	55	59	63	66	70	74	76	80	82
9"	42	49	56	62	67	72	76	82	86	90	92	95	98
9½"	50	58	66	70	80	86	91	96	101	105	111	116	119
10"	57	68	77	85	93	99	106	112	117	123	129	132	137
10½"	66	78	89	98	107	114	123	131	135	142	147	153	160
11"	74	88	100	111	121	130	138	147	155	161	169	174	183
11½"	83	99	112	124	137	146	156	165	173	181	189	196	204
12"	91	109	125	139	151	163	174	184	194	203	213	219	230
12½"	—	120	138	153	167	180	193	204	216	224	234	243	252
13"	—	132	151	168	183	197	211	224	235	247	256	267	279
13½"	—	143	164	183	200	216	230	246	258	270	282	293	302
14"	—	155	178	199	217	234	250	266	280	294	305	319	331
14½"	—	167	192	215	235	254	271	287	303	318	333	345	360
15"	—	178	206	231	252	273	291	309	326	343	357	372	386
15½"	—	—	220	247	271	291	312	332	350	368	382	400	417
16"	—	—	235	263	289	312	334	355	374	394	411	423	443
16½"	—	—	249	281	308	332	357	380	399	420	436	457	475
17"	—	—	—	297	326	353	378	402	425	447	467	486	502
17½"	—	—	—	314	345	374	400	426	449	471	494	516	536
18"	—	—	—	331	365	396	424	450	476	500	520	543	564
18½"	—	—	—	349	384	417	448	476	501	526	552	577	598
19"	—	—	—	366	404	439	470	500	529	555	580	604	631
19½"	—	—	—	384	424	461	496	528	558	584	613	641	663
20"	—	—	—	401	444	483	519	552	583	613	642	667	699
20½"	—	—	—	—	464	505	543	578	613	643	675	706	729
21"	—	—	—	—	485	528	568	604	640	673	705	733	766
21½"	—	—	—	—	505	551	594	632	669	703	739	766	797
22"	—	—	—	—	526	574	618	658	697	734	769	800	835
22½"	—	—	—	—	—	597	643	687	726	765	800	835	867
23"	—	—	—	—	—	620	668	713	754	796	830	869	906
23½"	—	—	—	—	—	642	695	740	784	827	866	904	945
24"	—	—	—	—	—	667	719	768	814	859	897	939	978
24½"	—	—	—	—	—	689	745	797	843	892	934	975	1,018
25"	—	—	—	—	—	714	771	825	875	922	966	1,010	1,051
25½"	—	—	—	—	—	737	798	855	907	956	1,003	1,047	1,092
26"	—	—	—	—	—	761	824	882	936	987	1,035	1,083	1,126
26½"	—	—	—	—	—	—	850	909	968	1,024	1,073	1,120	1,167
27"	—	—	—	—	—	—	877	939	998	1,053	1,106	1,157	1,202
27½"	—	—	—	—	—	—	904	968	1,030	1,089	1,145	1,195	1,243
28"	—	—	—	—	—	—	930	997	1,060	1,120	1,177	1,232	1,279
28½"	—	—	—	—	—	—	—	1,028	1,092	1,157	1,211	1,270	1,321
29"	—	—	—	—	—	—	—	1,056	1,123	1,187	1,248	1,305	1,360
29½"	—	—	—	—	—	—	—	1,084	1,155	1,221	1,284	1,347	1,400
30"	—	—	—	—	—	—	—	1,115	1,187	1,255	1,321	1,382	1,442
30½"	—	—	—	—	—	—	—	—	1,218	1,290	1,358	1,424	1,480
31"	—	—	—	—	—	—	—	—	1,252	1,324	1,394	1,459	1,523
31½"	—	—	—	—	—	—	—	—	1,286	1,359	1,433	1,496	1,561
32"	—	—	—	—	—	—	—	—	1,317	1,394	1,467	1,538	1,605
32½"	—	—	—	—	—	—	—	—	—	1,430	1,508	1,575	1,650
33"	—	—	—	—	—	—	—	—	—	1,465	1,542	1,617	1,687
33½"	—	—	—	—	—	—	—	—	—	1,500	1,578	1,655	1,733
34"	—	—	—	—	—	—	—	—	—	1,536	1,617	1,695	1,770
34½"	—	—	—	—	—	—	—	—	—	—	1,654	1,735	1,816
35"	—	—	—	—	—	—	—	—	—	—	1,692	1,775	1,856
35½"	—	—	—	—	—	—	—	—	—	—	—	1,810	1,900
36"	—	—	—	—	—	—	—	—	—	—	—	1,857	1,941
36½"	—	—	—	—	—	—	—	—	—	—	—	—	1,984
37"	—	—	—	—	—	—	—	—	—	—	—	—	2,026

30. When an area is required that is not given in the table (paragraph 29), the following formula shall be used:—

Formula to find area of segment.

$$\frac{4}{3} \frac{H^2}{R} \sqrt{2 \frac{R}{H}} - .608 = \text{Area of segment to be stayed, in square inches.}$$

H = distance from tubes to shell, minus five inches.

R = radius of boiler, minus three inches.

Divide the load in pounds allowed on a given *stay-bolt* by the net area supported by the *stay-bolt*, in square inches:—

Pitch of stay-bolts = $5'' \times 5''$.

Outside diameter of stay-bolt = $\frac{7}{8}''$.

Area of a $\frac{7}{8}''$ stay-bolt at bottom of thread = .419 square inches.

Load allowed on a $\frac{7}{8}''$ stay-bolt at 6,500 pounds per square inch = 2,724 pounds.

Net area supported by one stay-bolt = $5'' \times 5'' = 25 - .419$ (net area of stay-bolt) = 24.581 square inches.

$2,724 \div 24.581 =$ maximum allowable pressure per square inch = 110 pounds.

35. The maximum allowable stress per square inch net cross-sectional area of stays and stay-bolts shall be as follows:—

**Stays and
stay-bolts.**

MATERIAL AND TYPE.	Size up to and including $1\frac{1}{4}''$ Diameter or Equivalent Area.	Size over $1\frac{1}{4}''$ Diameter or Equivalent Area.
Weldless mild steel head to head or through stays,	8,000 lbs.	9,000 lbs.
Weldless mild steel diagonal or crow-foot stays,	7,500 lbs.	8,000 lbs.
Weldless wrought-iron head to head or through stays, ...	7,000 lbs.	7,500 lbs.
Weldless wrought-iron diagonal or crow-foot stays, ...	6,500 lbs.	7,000 lbs.
Welded mild steel or wrought-iron stays, . . .	6,000 lbs.	6,000 lbs.
Mild steel or wrought-iron stay-bolts, . . .	6,500 lbs.	7,000 lbs.

36. When a greater allowable stress per square inch on stays and stay-bolts is required than that allowed in paragraph 35 of this section, the material shall conform to the following physical qualities:—

**Specifica-
tions for
stays and
stay-bolts,
tested
material.**

Tensile strength, pounds per square inch, shall not exceed, ...	62,000
Yield point, in pounds per square inch, shall not be less than, ...	$\frac{1}{2}$ T. S.
Elongation per cent. in 8 inches shall not be less than, ...	28

and a certified report of test of such material shall be filed with the data report required by paragraph 4, section 3, Part III. of these

Rules; and the maximum allowable stress on such stays or stay-bolts shall be based on a factor of safety of not less than six and five-tenths (6.5).

Allowable load on stay-bolts. 37. Table of allowable loads on net cross-sectional area of stay-bolts, V threads, twelve (12) threads per inch:—

Outside Diameter of Stay-bolts, in Inches.		Diameter at Bottom of Thread, in Inches.	Net Cross-sectional Area (at Bottom of Thread), in Square Inches.	Allowable Load at 6,500 Pounds Stress, per Square Inch.	Allowable Load at 7,000 Pounds Stress, per Square Inch.
$\frac{3}{4}$	.7500	.6057	.288	1,872	2,016
$\frac{13}{16}$	.8125	.6682	.351	2,282	2,457
$\frac{7}{8}$	.8750	.7307	.419	2,724	2,933
$\frac{15}{16}$	.9375	.7932	.494	3,211	3,458
1	1.0000	.8557	.575	3,738	4,025
$1\frac{1}{16}$	1.0625	.9182	.662	4,303	4,634
$1\frac{1}{8}$	1.1250	.9807	.755	4,908	5,285
$1\frac{3}{16}$	1.1875	1.0432	.855	5,558	5,985
$1\frac{1}{4}$	1.2500	1.1057	.960	6,240	6,720
$1\frac{5}{16}$	1.3125	1.1682	1.072	6,968	7,504
$1\frac{3}{8}$	1.3750	1.2307	1.190	7,735	8,330
$1\frac{7}{16}$	1.4375	1.2932	1.313	8,535	9,191
$1\frac{1}{2}$	1.5000	1.3557	1.444	9,386	10,108

The formula for diameter of stay-bolt at bottom of thread being:—

$$D - (P \times 1.732) = d, \text{ or for 12 threads per inch,}$$

$$D - (.08333 \times 1.732) = d, \text{ then}$$

$$D - .1443 = d.$$

D = diameter of stay-bolt over the threads.

P = pitch of threads = $\frac{1}{12} = .08333$.

d = diameter of stay-bolt at bottom of threads.

1.732 = a constant.

When U. S. threads are used, the formula becomes:—

$$D - (P \times 1.732 \times .75) = d.$$

38. Table of allowable loads on net cross-sectional area of stay-bolts, V threads, ten (10) threads per inch:—

Outside Diameter of Stay-bolts, in Inches.		Diameter at Bottom of Thread, in Inches.	Net Cross-sectional Area (at Bottom of Thread), in Square Inches.	Allowable Load at 6,500 Pounds Stress, per Square Inch.	Allowable Load at 7,000 Pounds Stress, per Square Inch.
$1\frac{1}{4}$	1.2500	1.0768	.911	5,921	6,377
$1\frac{5}{16}$	1.3125	1.1393	1.019	6,623	7,133
$1\frac{3}{8}$	1.3750	1.2018	1.134	7,371	7,938
$1\frac{7}{16}$	1.4375	1.2643	1.255	8,157	8,785
$1\frac{1}{2}$	1.5000	1.3268	1.382	8,983	9,674
$1\frac{9}{16}$	1.5625	1.3893	1.515	9,847	10,605
$1\frac{5}{8}$	1.6250	1.4518	1.655	10,757	11,585

39. Table of allowable loads on net cross-sectional area of circular stays or rectangular stays of equal cross-sectional area:—

Minimum Diameter of Circular Stay, in Inches.		Net Cross-sectional Area of Stay, in Square Inches.	Allowable Stress, in Pounds per Square Inch, Net Cross- sectional Area.					
			6,000	6,500	7,000	7,500	8,000	9,000
			Allowable Load, in Pounds, on Net Cross-sectional Area.					
1	1.0000	.7854	4,712	5,105	5,498	5,891	6,283	—
1 $\frac{1}{16}$	1.0625	.8866	5,320	5,763	6,206	6,650	7,093	—
1 $\frac{1}{8}$	1.1250	.9940	5,964	6,461	6,958	7,455	7,952	—
1 $\frac{3}{16}$	1.1875	1.1075	6,645	7,199	7,753	8,306	8,860	—
1 $\frac{1}{4}$	1.2500	1.2272	7,363	7,977	8,590	9,204	9,818	—
1 $\frac{5}{16}$	1.3125	1.3530	8,118	8,795	9,471	10,148	10,824	12,177
1 $\frac{3}{8}$	1.3750	1.4849	8,909	9,652	10,394	11,137	11,879	13,364
1 $\frac{7}{16}$	1.4375	1.6230	9,738	10,550	11,361	12,173	12,984	14,607
1 $\frac{1}{2}$	1.5000	1.7671	10,603	11,486	12,370	13,253	14,137	15,904
1 $\frac{9}{16}$	1.5625	1.9175	11,505	12,464	13,423	14,381	15,340	17,258
1 $\frac{5}{8}$	1.6250	2.0739	12,443	13,480	14,517	15,554	16,591	18,665
1 $\frac{11}{16}$	1.6875	2.2365	13,419	14,537	15,655	16,744	17,892	20,129
1 $\frac{3}{4}$	1.7500	2.4053	14,432	15,634	16,827	18,040	19,242	21,648
1 $\frac{7}{8}$	1.8125	2.5802	15,481	16,771	18,061	19,352	20,642	23,222
1 $\frac{15}{16}$	1.8750	2.7612	16,567	17,948	19,328	20,709	22,090	24,851
2	1.9375	2.9483	17,690	19,164	20,638	22,112	23,586	26,535
2 $\frac{1}{16}$	2.0000	3.1416	18,850	20,420	21,901	23,562	25,133	28,274
2 $\frac{1}{8}$	2.1250	3.5466	21,280	23,053	24,826	26,600	28,373	31,919
2 $\frac{1}{4}$	2.2500	3.9761	23,857	25,845	27,833	29,821	31,809	35,785
2 $\frac{3}{8}$	2.3750	4.4301	26,580	28,796	31,011	33,226	35,441	39,871
2 $\frac{1}{2}$	2.5000	4.9087	29,452	31,907	34,361	36,815	39,270	44,178
2 $\frac{5}{8}$	2.6250	5.4119	32,471	35,177	37,883	40,589	43,295	48,707
2 $\frac{3}{4}$	2.7500	5.9396	35,638	38,607	41,577	44,547	47,517	53,456
2 $\frac{7}{8}$	2.8750	6.4918	38,951	42,197	45,443	48,689	51,934	58,426
3	3.0000	7.0686	42,412	45,946	49,480	53,015	56,549	63,617

40. The minimum thickness of cast-iron nozzles shall be determined by the following formula:—

**Cast-iron
nozzles.**

$$\frac{Pd}{2S} + .5 = t.$$

P = working pressure, in pounds per square inch.

d = inside diameter of nozzle, in inches.

f = factor of safety = 12.

S = ultimate tensile strength of cast-iron, not less than eighteen thousand (18,000) pounds per square inch, as required by paragraph 5, section 2, Part III. of these Rules.

.5 = a constant.

t = thickness of nozzle in inches.

Example. — Find the required thickness of a cast-iron steam nozzle six (6) inches in diameter for a working pressure of one hundred and fifty (150) pounds.

$$\frac{150 \times 6 \times 12}{2 \times 18,000} + .5 = .8", \text{ Thickness of nozzle.}$$

41. When the pressure allowed on a boiler exceeds one hundred and thirty-five (135) pounds per square inch, the thickness of the flanges of cast-iron nozzles, and of cast-iron

**Cast-iron
flanges and
blank
flanges.**

blank flanges, shall not be less than specified by the manufacturers' standard for high pressure.

Riveting. 42. On longitudinal joints, the distance from the center of rivet hole to the edge of the plate, except rivet holes in the ends of butt straps, shall not be less than one and one-half ($1\frac{1}{2}$) times the diameter of the rivet hole.

43. Rivet holes, except for attaching stays or angle bars to heads, shall be drilled full size with plates, butt straps and heads bolted up in position; or they may be punched not to exceed one-fourth ($\frac{1}{4}$) inch less than full size for plates over five-sixteenths ($\frac{5}{16}$) of an inch in thickness, and one-eighth ($\frac{1}{8}$) of an inch less than full size for plates not exceeding five-sixteenths ($\frac{5}{16}$) of an inch in thickness, and then drilled or reamed to full size with plates, butt straps and heads bolted up in position.

44. Rivets shall be of sufficient length to completely fill the rivet holes and form a head equal in strength to the body of the rivet.

45. Rivets shall be machine driven, wherever possible, with sufficient pressure to fill the rivet holes, and shall be allowed to cool and shrink under pressure.

Calking. 46. The calking edges of plates and heads shall be beveled wherever possible. Calking shall be done with a round-nosed tool.

Tube holes. 47. Tube holes shall be drilled full size, or they may be punched not to exceed one-half ($\frac{1}{2}$) inch less than full size, and then drilled, reamed or finished full size with rotating cutter.

48. The edges of tube holes shall be chamfered to a radius of about one-sixteenth ($\frac{1}{16}$) inch.

Tube ends fire-tube boilers. 49. A fire-tube boiler shall have the ends of the tubes substantially beaded.

Tube ends water-tube boilers and superheaters. 50. The ends of all tubes, suspension tubes and nipples shall be flared not less than one-eighth ($\frac{1}{8}$) inch over the diameter of the tube hole on all water-tube boilers and superheaters.

51. The ends of all tubes, suspension tubes and nipples of water-tube boilers and superheaters shall not project through the tube sheets or headers less than one-fourth ($\frac{1}{4}$) inch nor more than one-half ($\frac{1}{2}$) inch. Separately fired superheaters shall have the tube ends protected by refractory material where they connect with drums or headers.

Fusible plug in a tube. 52. When it is necessary to place a fusible plug in a tube, an extra thick tube shall be provided for that purpose.

Openings in shells, drums or heads to be re-enforced. 53. An opening in a boiler for a threaded pipe connection one (1) inch in diameter or over (except water column connections) shall not have less than the minimum number of threads in such opening, as shown in the following table:—

Size of pipe connection, in inches.	1 and 1¼	1½ and 2	2½ to 4 inclusive	4½ to 6 inclusive	7 and 8	9 and 10	12
Number of threads per inch.	11½	11½	8	8	8	8	8
Minimum number of threads required in opening.	4	5	7	8	10	12	13
Minimum thickness of material required to give above number of threads.	.348" (.375"=¾")	.435" (.4375"=7/16")	.875"	1"	1.25"	1.5"	1.625"

If the thickness of the material in the boiler is not sufficient to give such number of threads, there shall be a standard commercial pressed steel flange, bronze composition flange, cast-steel flange or steel plate, substantially riveted to the boiler, so as to give the required number of threads. A main steam or safety valve opening may be fitted with either a cast-steel, cast-iron or bronze composition nozzle, and a feed-pipe connection may be fitted with a brass or steel boiler bushing.

54. An elliptical manhole opening shall not be less than eleven by fifteen (11×15) inches in size. **Manholes and sizes.**

A circular manhole opening shall not be less than fifteen (15) inches in diameter.

A variation of one-half (½) inch in the above dimensions will be allowed.

55. There shall be a manhole in the upper part of the shell or head of a fire-tube boiler over forty (40) inches in diameter, except a vertical fire-tube boiler.

56. A manhole frame shall be of wrought or cast steel, and have a net cross-sectional area; on a line parallel to the axis of the shell, not less than the cross-sectional area of shell plate removed on the same line. **Manhole frames.**

57. Manhole frames on shells or drums shall have the proper curvature, and on boilers over forty-eight (48) inches in diameter shall be riveted to the shell or drum with two rows of rivets, which may be pitched as shown in Fig. 18. The strength of the rivets in shear shall not be less than the tensile strength of the shell plate removed, on a line parallel to the axis of the shell, through the center of the manhole.

58. The strength of manhole plates, yokes and bolts shall be in proportion to the strength of the manhole frames.

59. Manhole plates shall be of wrought or cast steel.

**Location of
manholes
and hand-
holes.**

60. A manhole shall be located in the front head, below the tubes, of a horizontal return tubular boiler sixty (60) inches or over in diameter.

61. A manhole or handhole shall be located in the front head, below the tubes, of a horizontal return tubular boiler less than sixty (60) inches in diameter.

62. A handhole shall be located in the rear head of a horizontal return tubular boiler, below the tubes, except one which has a manhole in the front head, below the tubes.

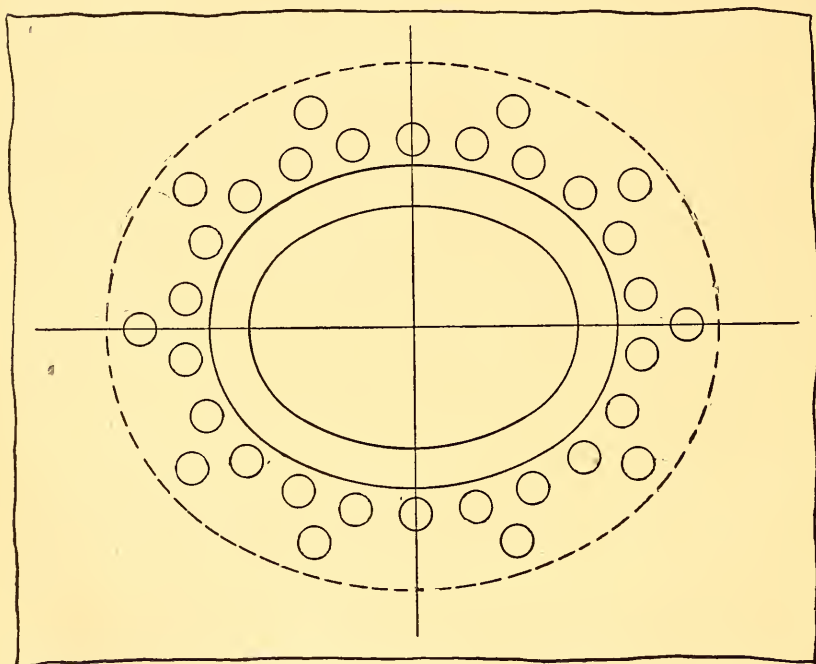


FIG. 18.

63. A locomotive type boiler shall not have less than (6) handholes, located as follows:—

One (1) in the rear head, below the tubes.

One (1) in the front head, at or about the line of the crown sheet.

Four (4) in the lower part of the waterleg.

Also, where possible, one (1) near the throat sheet.

64. A vertical fire-tube boiler, except the boiler of a steam fire-engine, shall have not less than four (4) handholes, located as follows:—

One (1) in the shell at or about the line of the crown sheet.

One (1) in the shell at or about the line of the fusible plug, except a

vertical fire-tube boiler having a manhole in the shell or head, through which the fusible plug is accessible.

Two (2) in the shell at the lower part of the waterleg.

65. A vertical fire-tube boiler of a steam fire-engine shall not have less than three (3) brass washout plugs of not less than one (1) inch pipe size, screwed into the shell and located as follows: —

One (1) at or about the line of the crown sheet.

Two (2) at the lower part of the waterleg.

66. There shall not be less than one (1) inch of solid plate in the clear, inside and out, around a handhole opening in a boiler; except that on a stay-bolted surface seven-sixteenths ($\frac{7}{16}$) inch thick or over, there shall not be less than one-half ($\frac{1}{2}$) inch of solid plate in the clear, inside and out, around a handhole opening.

67. A horizontal return tubular boiler over seventy-eight (78) inches in diameter shall be supported, independent of the boiler side-walls, from steel lugs by the outside suspended type of setting; where three (3) supports are necessary on each side of a boiler, an equalizer shall be used.

**Method of
supporting
H. T.
boilers.**

68. A horizontal return tubular boiler over fifty-four (54) inches in diameter, and up to and including seventy-eight (78) inches in diameter, shall be supported by the outside suspended type of setting, or by not less than four (4) steel or cast-iron brackets on each side, set in pairs.

69. A horizontal return tubular boiler up to and including fifty-four (54) inches in diameter shall be supported by the outside suspended type of setting, or by not less than two (2) steel or cast-iron brackets on each side.

70. Supporting lugs or brackets shall have the proper curvature and be securely riveted to the shell; the shearing stress on the rivets not to exceed eight (8) per cent. of the allowable shearing strength given in paragraph 5, section 1, Part II. of these Rules.

**Support-
ing lugs or
brackets.**

71. The upper surface of the fire-grate of an internally fired boiler of the open bottom locomotive, vertical fire-tube or similar type, shall not be below the water space in the waterleg, except where the rivets at the bottom of the waterleg are protected from the action of the fire and products of combustion.

**Height of
grate.**

72. Wet-bottom boilers shall have a clear space of not less than twelve (12) inches between the bottom of the boiler and the floor line.

**Wet-bot-
tom
boilers.**

SECTION 5.

**Safety
valves
on steam
pipes.**

1. A safety valve shall not be connected to an internal pipe placed in the steam space of a boiler.

**Safety
valves
on super-
heaters.**

2. When a superheater can be shut off from the boiler, whether attached or separately fired, it shall have an ample safety valve at or near the steam inlet.

**Stop
valves.**

3. Each steam outlet from a boiler which is over two (2) inches in diameter (except a safety valve connection) shall be fitted with a stop valve or valves of the outside screw and yoke type, located as near the boiler as practicable.

4. The stop valve or valves on the main steam pipe of a boiler shall be extra heavy when the pressure allowed exceeds one hundred and thirty-five (135) pounds. The fittings from boiler up to the valves shall be extra heavy, made to the manufacturers' standard for high pressures.

5. Two stop valves of the outside screw and yoke type, with an ample valved drain between them, having an open discharge, shall be placed on the main steam pipe of a boiler having a manhole, and set in battery, when the pressure allowed on any boiler in the battery exceeds one hundred and thirty-five (135) pounds.

**Pipe
threads.**

6. The minimum number of threads that a pipe or nipple shall screw into a fitting is given in the following table:—

Size of pipe connection, in inches.	1 and 1½	1½ and 2	2½ to 4 inclusive	4½ to 6 inclusive	7 and 8	9 and 10	12
Number of threads per inch.	11½	11½	8	8	8	8	8
Minimum number of threads into fitting.	4	5	7	8	10	12	13

7. All boilers set in battery and superheating the steam they generate over 80° Fahrenheit shall have two (2) stop valves, with an ample valved drain between them having an open discharge.

**Feed
piping.**

8. The feed pipe of a boiler shall have open end or ends. When a globe valve is used on a feed pipe, the inlet shall be under the disc of the valve.

9. The feed water shall discharge about three-fifths ($\frac{3}{5}$) the length of a horizontal return tubular boiler from the front head (except a horizontal return tubular boiler equipped with an auxiliary feed water heating and circulating device), and at or about the central rows of tubes above the tubes, when the diameter of the boiler exceeds thirty-six (36) inches and the pressure allowed exceeds twenty-five (25) pounds

per square inch. The feed pipe shall be carried through the head or shell with a brass or steel boiler bushing (or the opening re-enforced), and securely fastened inside the shell above the tubes.

10. Feed water shall not discharge in a boiler in close proximity to riveted joints in shell or furnace sheets.

Feed-water discharge.

11. When boilers of fifty (50) horse power or over are set in battery, each boiler shall have two (2) stop valves, or a stop valve and stop cock, on the feed pipe, one (1) on each side of the check valve.

Valves on feed piping.

12. When a pump, inspirator or injector is required to supply feed water to a boiler of over fifty (50) horse power, more than one such mechanical appliance shall be provided.

Feed-water appliances.

13. The temperature of the usual feed water entering a boiler, except the boiler of a steam fire engine, shall not be less than 120° Fahrenheit when the pressure allowed exceeds twenty-five (25) pounds per square inch.

Temperature of feed.

14. The maximum size of a surface blow-off pipe shall not exceed one and one-half ($1\frac{1}{2}$) inches, and it shall be carried through the shell or head with a brass or steel boiler bushing, or the opening re-enforced.

Surface blow-off.

15. Each boiler shall have a bottom blow-off pipe, fitted with a valve or cock, in direct connection with the lowest water space practicable; the minimum size of pipe and fittings shall be one (1) inch and the maximum size shall be two and one-half ($2\frac{1}{2}$) inches. Globe valves shall not be used.

Bottom blow-off and fittings.

16. A bottom blow-off cock shall have the plug held in place by a guard or gland. The end of the plug shall be distinctly marked in line with its passage.

17. When the pressure allowed on a boiler exceeds twenty-five (25) pounds per square inch, the bottom blow-off pipe and fittings, from the boiler to the valve or valves, shall be extra heavy.

18. When the pressure allowed on a boiler exceeds one hundred and thirty-five (135) pounds per square inch, the bottom blow-off pipe shall have two (2) valves, or a valve and a cock; and such valves, or valve and cock, shall be extra heavy.

19. A bottom blow-off pipe shall be protected from the products of combustion by a fire-brick casing, substantial cast-iron removable sleeve, or covering of non-conducting material.

20. An opening in brickwork for a blow-off pipe shall be fitted with an ample cast or wrought iron sleeve, to provide for free expansion and contraction.

21. The minimum size of a clean-out door to be placed in a boiler setting shall be twelve by sixteen (12×16) inches,

Clean-out doors.

or equivalent area, twelve (12) inches to be the least dimension in any case.

**Water
column
pipes.**

22. The minimum size of pipes connecting the water column of a boiler shall be one (1) inch.

23. The water connection to the water column of a boiler shall be of brass when the allowable pressure exceeds twenty-five (25) pounds per square inch.

24. The steam connection to the water column of a horizontal return tubular boiler shall be taken from the top of shell or the upper part of head; the water connection shall be taken from a point not less than six (6) inches below the center line of the shell.

25. No connections, except for damper regulator, feed-water regulator, drains or steam gages, shall be placed on the pipes connecting a water column to a boiler.

26. When shut-off valves are placed on the pipes connecting a water column to a boiler, these valves shall be of the straight-way outside screw and yoke type, and shall be locked or sealed *open*.

27. No water glass connection shall be fitted with an automatic shut-off valve.

**Steam
mains.**

28. Provision shall be made for the expansion and contraction of steam mains connected to all boilers, with substantial anchorage at suitable points, that there may be no perceptible vibration on the boiler shell plates.

29. Steam reservoirs shall be used on steam mains when heavy pulsations of the steam currents cause vibration on the boiler shell plates.

**Super-
heater
drains.**

30. All superheaters shall be fitted with drains from headers or drums where water of condensation can collect.

**Cast-iron
sections.**

31. The sections for a cast-iron boiler shall be tested by hydrostatic pressure to not less than sixty (60) pounds per square inch before being assembled.

SECTION 6.

**Request
for permis-
sion to
install
boilers, not
Massachu-
setts
Standard.**

1. When the owner or user, or prospective owner or user, wishes to install a boiler which was not within this Commonwealth on May 14, 1909 (except a portable boiler, as provided in paragraph 2 of this section), and which does not conform in every detail with the rules of construction formulated by this Board, he shall make request, on a form to be furnished by this Board, for permission to install such boiler; said form shall require detailed information concerning the boiler, and a sworn statement from the person making the request. The boiler may be installed, after thorough internal and external inspection and hydrostatic pres-

sure test by a member of the boiler inspection department of the district police, upon the receipt of the written approval of this Board, which shall be forwarded to both the person making the request and the chief inspector of the boiler inspection department of the district police. Where reports of tests of material cannot be furnished by the person making this request, and it is deemed necessary by the inspector to cut test pieces from the boiler or to remove rivets to ascertain their size or quality, all necessary expense for so doing shall be borne by the person making this request. Five and one-half ($5\frac{1}{2}$) shall be the lowest factor of safety used in calculating the maximum allowable working pressure on the shell or drum of a boiler installed in accordance with this paragraph. The longitudinal joints of such boiler must be in accord with the provisions of paragraphs 5, 6 or 7, section 4, Part III. of these Rules. The word "owner," or "user," in this paragraph, shall not be construed to mean the manufacturer or seller of a boiler. If such boiler is not installed within twelve (12) months from the date of approval, such approval shall be null and void.

2. A portable boiler which has been used in this Commonwealth and removed therefrom, which does not conform in every detail with the rules of construction formulated by this Board, and has been previously inspected by a member of the boiler inspection department of the district police, or by an inspector of an insurance company authorized to insure steam boilers in this Commonwealth, may be inspected and a certificate of inspection issued if relocated in this Commonwealth.

**Portable
boilers.**

Section 1, chapter 393, Acts of 1909, provides that: "A boiler in this Commonwealth at the time of the passage of this act, which does not conform to the rules of construction formulated by the board of boiler rules may be installed after a thorough internal and external inspection and hydrostatic pressure test by a member of the boiler inspection department of the district police, or by an inspector holding a certificate of competency as an inspector of steam boilers, as provided by section six of chapter four hundred and sixty-five of the acts of the year nineteen hundred and seven, and employed by the company insuring the boiler. The pressure allowed on such boilers is to be ascertained by rules formulated by the board of boiler rules." (*Approved May 14, 1909.*)

**Boilers in
State on or
before May
14, 1909,
can be re-
installed.**

3. The lowest factors of safety to be used in calculating the maximum allowable pressure on boilers which were in this Commonwealth on or before May 14, 1909, and which are not Massachusetts Standard, or which have not been passed by joint inspection, if hereafter installed, shall be as follows:—

**Factors of
safety.**

(a) Six (6) for boilers the longitudinal joints of which are of lap-riveted construction, and the shells or drums of which *are not* exposed to the products of combustion.

(b) Six (6) for boilers the longitudinal joints of which are of lap-riveted construction, and the shells or drums of which *are* exposed to the products of combustion, diameters up to and including thirty-six (36) inches.

(c) Eight (8) for boilers the longitudinal joints of which are of lap-riveted construction, and the shells or drums of which *are* exposed to the products of combustion, diameters over thirty-six (36) inches.

(d) Four and five-tenths (4.5) for boilers the longitudinal joints of which are of butt and double-strap construction, age not exceeding ten (10) years.

(e) Five (5) for boilers the longitudinal joints of which are of butt and double-strap construction, age over ten (10) years.

The hydrostatic pressure test on such boilers shall be one and one-half ($1\frac{1}{2}$) times the maximum allowable pressure obtained by using the above factors of safety.

All rules and parts of rules inconsistent herewith are hereby repealed.

RECOMMENDATIONS MADE BY THE BOARD OF BOILER RULES.

1. This Board recommends the installation of more than one safety valve on a boiler permitted to carry over twenty-five (25) pounds pressure per square inch.

2. This Board does not recommend the use of externally fired boilers over eighty-four (84) inches in diameter.

3. This Board does not recommend a steam dome on a boiler, but does recommend the use of a deflecting plate, or a dry pipe located at the highest point of the steam space, and having closed ends and small slotted or drilled openings on its upper part, a total area of openings not less than twice the area of the outlet, and an ample drain opening at the lowest point.

4. This Board does not recommend the use of cast-iron or copper steam pipe.

5. This Board does not recommend attaching diagonal stays to shell plates directly over the fire.

6. This Board recommends elliptical handholes of the following sizes : —

Two and one-fourth by three and one-fourth ($2\frac{1}{4} \times 3\frac{1}{4}$) inches.

Two and five-eighths by three and three-fourths ($2\frac{5}{8} \times 3\frac{3}{4}$) inches.

Three by four and one-half ($3 \times 4\frac{1}{2}$) inches.

Three and one-half by five ($3\frac{1}{2} \times 5$) inches.

Four by six (4×6) inches.

7. This Board recommends discontinuing from service, and not repairing, a boiler on which a longitudinal lap crack is discovered.

8. This Board does not recommend the O. G. form of construction at the lower end of furnace sheets.

9. This Board does not recommend the use of lead man-hole gaskets below the water line.

ASSIGNMENTS OF DISTRICTS, BOILER INSPECTION.

The following assignments of districts are now in force: —

INSPECTORS OF BOILERS.

DISTRICT No. 1.

HENRY BUSHEK, *Boiler Inspector.*

Office, 12 Kinsman Block, Salem.

Amesbury	Hamilton	NEWBURYPORT
BEVERLY	HAVERHILL	North Andover
Boxford	Ipswich	Rockport
Danvers	Manchester	Rowley
Essex	Marblehead	Salisbury
Georgetown	Merrimac	Topsfield
GLOUCESTER	Middleton	Wenham
Groveland	Newbury	West Newbury

DISTRICT No. 2.

WM. W. RAMSAY, *Boiler Inspector.*

Office, 12 Kinsman Block, Salem.

LYNN	Peabody	Saugus
Lynnfield	Revere	Swampscott
Nahant	SALEM	Winthrop

DISTRICT No. 3.

EDWARD MORAN, *Boiler Inspector.*

Office, 71 Central Block, Lowell.

Andover	Billerica	Dracut
Ashby	Carlisle	Dunstable
Ayer	Chelmsford	Groton

LAWRENCE	North Reading	Townsend
Littleton	Pepperell	Tyngsborough
LOWELL	Shirley	Westford
Methuen	Tewksbury	Wilmington

DISTRICT No. 4.CHAS. SKOGLUND, *Boiler Inspector.*

Office, 3 State House, Boston.

Acton	Concord	WALTHAM
Arlington	Hudson	Watertown
Bedford	Lexington	Wayland
Belmont	Lincoln	Weston
Boxborough	Maynard	Winchester
Burlington	Stow	WOBURN
CAMBRIDGE	Sudbury	

DISTRICT No. 5.CHAS. FERGUSON, *Boiler Inspector.*

Office, 3 State House, Boston.

CHELSEA	MEDFORD	SOMERVILLE
EVERETT	MELROSE	Stoneham
MALDEN	Reading	Wakefield

Also Charlestown (except the water front).

DISTRICT No. 6.EDWARD A. MORES, *Boiler Inspector.*

Office, 3 State House, Boston.

BOSTON proper, bounded by Causeway Street, Commercial Street, Atlantic Avenue, Essex Street, Boylston Street, Massachusetts Avenue to Charles River, and Charles River to Warren bridge.

DISTRICT No. 7.GEORGE D. MACKINTOSH, *Boiler Inspector.*

Office, 3 State House, Boston.

BOSTON, proper and South Boston, bounded by Summer Street Extension, Atlantic Avenue, Essex Street, Boylston Street, Massachusetts Avenue, Columbia Road to the water front.

DISTRICT No. 8.JAMES W. EVANS, *Boiler Inspector.*

Office, 3 State House, Boston.

EAST BOSTON and the water front, from Mystic bridge in Charlestown to Summer Street Extension, including Charles River to Cottage Farm bridge; also Boston harbor and the islands therein.

DISTRICT No. 9.JOHN McGRATH, *Boiler Inspector.*

Office, 3 State House, Boston.

BOSTON, south of Massachusetts Avenue and Columbia Road, including:—

Allston	Jamaica Plain	Roxbury
Brighton	Mattapan	West Roxbury
Dorchester	Roslindale	

DISTRICT No. 10.STURGIS C. BAXTER, *Boiler Inspector.*

Office, 3 State House, Boston.

Ashland	Holbrook	Norfolk
Avon	Holliston	Norwood
Bellingham	Hopkinton	Plainville
Braintree	Hull	QUINCY
Brookline	Hyde Park	Randolph
Canton	MARLBOROUGH	Sharon
Cohasset	Medfield	Sherborn
Dedham	Medway	Stoughton
Dover	Millis	Walpole
Foxborough	Milton	Wellesley
Framingham	Natick	Westwood
Franklin	Needham	Weymouth
Hingham	NEWTON	Wrentham

DISTRICT No. 11.HERBERT A. SULLIVAN, *Boiler Inspector.*

Office, Hudner Building, Fall River.

Attleborough	Dartmouth	Edgartown
Berkley	Dighton	FALL RIVER
Chilmark	Easton	Freetown

Gay Head	Oak Bluffs	Swansea
Gosnold	Raynham	TAUNTON
Mansfield	Rehoboth	Tisbury
Nantucket	Seekonk	West Tisbury
North Attleborough	Somerset	Westport
Norton		

DISTRICT No. 12.

PERCY B. BRAGDON, *Boiler Inspector.*

Office, Hudner Building, Fall River.

Abington	Halifax	Plymouth
Acushnet	Hanover	Plympton
Barnstable	Hanson	Provincetown
Bourne	Harwich	Rochester
Brewster	Kingston	Rockland
Bridgewater	Lakeville	Sandwich
BROCKTON	Marion	Scituate
Carver	Marshfield	Truro
Chatham	Mashpee	Wareham
Dennis	Mattapoisett	Wellfleet
Duxbury	Middleborough	West Bridgewater
East Bridgewater	NEW BEDFORD	Whitman
Eastham	Norwell	Yarmouth
Fairhaven	Orleans	
Falmouth	Pembroke	

DISTRICT No. 13.

JAMES B. DESHAZO, *Boiler Inspector.*

Office, 476 Main Street, Worcester.

Auburn	Leicester	Spencer
Blackstone	Mendon	Sturbridge
Brookfield	Milford	Sutton
Charlton	Millbury	Upton
Douglas	Northbridge	Uxbridge
Dudley	North Brookfield	Warren
Grafton	Oxford	Webster
Hopedale	Southbridge	West Brookfield

Also the city of WORCESTER south of Shrewsbury, Front and Pleasant streets.

DISTRICT No. 14.HARRY E. MORTON, *Boiler Inspector.*

Office, 476 Main Street, Worcester.

Ashburnham	Holden	Royalston
Athol	Hubbardston	Rutland
Barre	Lancaster	Shrewsbury
Berlin	Leominster	Southborough
Bolton	Lunenburg	Sterling
Boylston	New Braintree	Templeton
Clinton	Northborough	West Boylston
Dana	Oakham	Westborough
FITCHBURG	Paxton	Westminster
Gardner	Petersham	Winchendon
Hardwick	Phillipston	
Harvard	Princeton	

Also city of WORCESTER north of Shrewsbury, Front and Pleasant streets.

DISTRICT No. 15.FREEMAN H. SANBORN, *Boiler Inspector.*

Office, 21 Besse Place, Springfield.

Agawam	Longmeadow	Wales
Brimfield	Ludlow	West Springfield
CHICOPEE	Monson	Westfield
East Longmeadow	Palmer	Wilbraham
Hampden	Southwick	
Holland	SPRINGFIELD	

DISTRICT No. 16.ARTHUR F. LOVERING, *Boiler Inspector.*

Office, Masonic Building, Northampton.

Amherst	Greenwich	Prescott
Belchertown	Hadley	South Hadley
Chesterfield	Hatfield	Southampton
Cumington	HOLYOKE	Shutesbury
Easthampton	Leverett	Sunderland
Enfield	New Salem	Ware
Goshen	NORTHAMPTON	Westhampton
Granby	Pelham	Williamsburg

DISTRICT No. 17.FRANKLIN L. FORBUSH, *Boiler Inspector.*

Office, Kimbell Block, North Adams.

Adams	Florida	Northfield
Ashfield	Gill	Orange
Bernardston	Greenfield	Plainfield
Buckland	Hawley	Rowe
Charlemont	Heath	Savoy
Clarksburg	Leyden	Shelburne
Colrain	Mouroe	Warwick
Conway	Montague	Wendell
Deerfield	New Ashford	Whately
Erving	NORTH ADAMS	Williamstown

DISTRICT No. 18.FRANK C. HINCKLEY, *Boiler Inspector.*

Office, Court House, Pittsfield.

Alford	Lanesborough	Richmond
Becket	Lee	Russell
Blandford	Lenox	Sandisfield
Cheshire	Middlefield	Sheffield
Chester	Monterey	Stockbridge
Dalton	Montgomery	Tolland
Egremont	Mount Washington	Tyringham
Granville	New Marlborough	Washington
Great Barrington	Otis	West Stockbridge
Hancock	Peru	Windsor
Hinsdale	PITTSFIELD	Worthington
Huntington		

SPECIAL DUTY.WILLIS A. HARLOW, *Boiler Inspector.*JOHN B. KEARNEY, *Boiler Inspector.*HERBERT E. MITCHELL, *Boiler Inspector.*WILBERT E. SIMM, *Boiler Inspector.*BENJAMIN S. WATERMAN, *Boiler Inspector.*

Office, Room 3, State House.

GEORGE E. RICHARDSON, *Boiler Inspector.*

Office at Springfield.

REPORTS OF INSPECTORS OF BOILERS.

REPORT OF INSPECTOR HENRY BUSHEK.

Boiler Inspection Law.

Boilers inspected internally, 193; externally, 121, ...	314
Defects found on boilers, ...	469
Boilers ordered repaired, ...	19
Appendages ordered, or defective appendages ordered repaired or replaced, ...	276
Number of boilers on which hydrostatic pressure test was applied, ...	87
Number of boilers on which maximum allowable pressure was reduced, ...	11
Number of boilers condemned, ...	3
Complaints investigated: boiler inspection law, ...	4
Prosecutions for violation of boiler inspection law, . . .	1
Fines imposed for violation of boiler inspection law, . . .	\$6

Engineers' and Firemen's License Law.

	By Individual Examiner.	By Board of Examiners.	Total.
Applications received, ...	—	—	229
Licenses granted:—			
First-class engineers, ...	1	—	1
Second-class engineers, ...	4	1	5
Third-class engineers, ...	6	—	6
Fourth-class engineers, ...	5	—	5
Portable engineers, ...	7	—	7
First-class firemen, ...	2	—	2
Second-class firemen, ...	43	1	44
Specials to have charge of third-class plants, ...	7	—	7
Specials to operate first-class plants, ...	—	1	1
Other specials to have charge, ...	8	—	8
Other specials to operate, ...	2	—	2
Total licenses granted, ...	85	3	88
Applicants rejected, ...	122	7	129

Number of examinations by Board of which I was a member, ...	20
Licenses renewed, 61; licenses exchanged, 125, ...	186
Licenses suspended, 7; licenses revoked, 1, ...	8
Complaints investigated: engineers' and firemen's license law, ...	32
Prosecutions for violation of engineers' and firemen's license law, ...	10
Fines imposed for violation of engineers' and firemen's license law, ...	\$15

Operators of Hoisting Machinery.

Applications received for license as operators of hoisting machinery, ...	10
Licenses granted, ...	10

REPORT OF INSPECTOR WILLIAM W. RAMSAY.

Boiler Inspection Law.

Boilers inspected internally, 148; externally, 98, ...	246
Defects found on boilers, ...	357
Boilers ordered repaired, ...	13
Appendages ordered, or defective appendages ordered repaired or replaced, ...	170
Number of boilers on which hydrostatic pressure test was applied, ...	91
Number of boilers on which maximum allowable pressure was reduced, ...	16
Number of boilers condemned, ...	1
Complaints investigated: boiler inspection law, ...	1

Engineers' and Firemen's License Law.

	By Individual Examiner.	By Board of Examiners.	Total.
Applications received, ...	—	—	524
Licenses granted: —			
First-class engineers, ...	2	1	3
Second-class engineers, ...	11	6	17
Third-class engineers, ...	25	2	27
Fourth-class engineers, ...	18	—	18
Portable engineers, ...	13	—	13
First-class firemen, ...	42	1	43
Second-class firemen, ...	119	—	119
Specials to have charge of second-class plants, ...	—	4	4
Specials to have charge of third-class plants, ...	13	—	13
Specials to operate first-class plants, ...	—	6	6
Specials to operate second-class plants, ...	3	—	3
Specials to operate third-class plants, ...	2	—	2
Other specials to have charge, ...	18	—	18
Other specials to operate, ...	8	—	8
Total licenses granted, ...	274	20	294
Applicants rejected, ...	201	23	224

Number of examinations by Board of which I was a member,	68
Licenses renewed, 61; licenses exchanged, 435, ...	496
Licenses suspended, 1; licenses revoked, 2, ...	3
Complaints investigated: engineers' and firemen's license law,	37
Prosecutions for violation of engineers' and firemen's license law, ...	4
Fines imposed for violation of engineers' and firemen's license law, ...	\$50

Operators of Hoisting Machinery.

Applications received for license as operators of hoisting machinery, ...	11
Licenses granted, ...	10
Applicants rejected, ...	1
Complaints investigated, ...	1

REPORT OF INSPECTOR EDWARD MORAN.

Boiler Inspection Law.

Boilers inspected internally, 218; externally, 26, ...	244
Defects found on boilers, ...	52
Boilers ordered repaired, ...	37
Appendages ordered, or defective appendages ordered repaired or replaced, ...	206
Number of boilers on which hydrostatic pressure test was applied, ...	13
Number of boilers on which maximum allowable pressure was reduced, ...	2
Number of boilers condemned, ...	1
Complaints investigated: boiler inspection law, ...	3

Engineers' and Firemen's License Law.

	By Individual Examiner.	By Board of Examiners.	Total.
Applications received, ...	-	-	469
Licenses granted:—			
First-class engineers, ...	-	6	6
Second-class engineers, ...	3	3	6
Third-class engineers, ...	32	-	32
Fourth-class engineers, ...	6	-	6
Portable engineers, ...	2	-	2
Steam-fire engineers, ...	3	-	3
First-class firemen, ...	41	-	41
Second-class firemen, ...	163	-	163
Specials to have charge of second-class plants, ...	-	2	2
Specials to have charge of third-class plants, ...	9	-	9
Specials to operate first-class plants, ...	-	6	6
Specials to operate second-class plants, ...	1	-	1
Specials to operate third-class plants, ...	2	-	2
Other specials to have charge, ...	6	-	6
Other specials to operate, ...	4	-	4
Total licenses granted, ...	272	17	289
Applicants rejected, ...	149	18	167

Number of examinations by Board of which I was a member,	62
Licenses renewed, 114; licenses exchanged, 255,	369
Licenses suspended.	1
Complaints investigated: engineers' and firemen's license law,	5

Operators of Hoisting Machinery.

Applications received for license as operators of hoisting machinery,	23
Licenses granted,	20
Applicants rejected,	2

REPORT OF INSPECTOR GEORGE A. LUCK.¹

Boiler Inspection Law.

Boilers inspected internally, 8; externally, 1,	9
Appendages ordered, or defective appendages ordered repaired or replaced,	13
Number of boilers on which hydrostatic pressure test was applied,	2
Number of boilers on which maximum allowable pressure was reduced,	1

Engineers' and Firemen's License Law.

	By Individual Examiner.	By Board of Examiners.	Total.
Applications received,	—	—	222
Licenses granted: —			
First-class engineers,	1	1	2
Second-class engineers,	2	1	3
Third-class engineers,	8	—	8
First-class firemen,	21	—	21
Second-class firemen,	28	1	29
Specials to have charge of second-class plants,	—	2	2
Specials to have charge of third-class plants,	5	—	5
Specials to operate first-class plants,	—	2	2
Specials to operate second-class plants,	1	—	1
Specials to operate third-class plants,	1	—	1
Other specials to have charge,	1	—	1
Other specials to operate,	2	—	2
Total licenses granted,	70	7	77
Applicants rejected,	122	14	136

¹ Appointed Acting Chief Inspector July 8, 1912.

Number of examinations by Board of which I was a member,	36
Licenses renewed, 78; licenses exchanged, 31, ...	109
Complaints investigated: engineers' and firemen's license law,	12

Operators of Hoisting Machinery.

Applications received for license as operators of hoisting machinery, ...	12
Licenses granted, ...	5

REPORT OF INSPECTOR CHARLES SKOGLUND.¹*Boiler Inspection Law.*

Boilers inspected internally, 93; externally, 73, ...	166
Defects found on boilers, ...	26
Boilers ordered repaired, ...	19
Appendages ordered, or defective appendages ordered repaired or replaced, ...	178
Number of boilers on which hydrostatic pressure test was applied, ...	66
Number of boilers on which maximum allowable pressure was reduced, ...	9
Number of boilers condemned, ...	1

Engineers' and Firemen's License Law.

	By Individual Examiner.	By Board of Examiners.	Total.
Applications received, ...	-	-	94
Licenses granted:—			
First-class engineers, ...	-	2	2
Second-class engineers, ...	-	1	1
Third-class engineers, ...	10	-	10
Fourth-class engineers, ...	2	-	2
First-class firemen, ...	14	-	14
Second-class firemen, ...	38	-	38
Specials to have charge of second-class plants, ...	-	1	1
Specials to have charge of third-class plants, ...	3	-	3
Specials to operate first-class plants, ...	-	1	1
Total licenses granted, ...	67	5	72
Applicants rejected, ...	55	50	105

¹ Appointed March 12, 1912.

Number of examinations by Board of which I was a member,	99
Licenses exchanged, ...	148
Complaints investigated: engineers' and firemen's license law,	5

Operators of Hoisting Machinery.

Licenses granted, ...	1
Applicants rejected, ...	1

REPORT OF INSPECTOR CHARLES FERGUSON.

Boiler Inspection Law.

Boilers inspected internally, 71; externally, 67, ...	138
Defects found on boilers, ...	46
Boilers ordered repaired, ...	10
Appendages ordered, or defective appendages ordered repaired or replaced, ...	329
Number of boilers on which hydrostatic pressure test was applied, ...	71
Number of boilers on which maximum allowable pressure was reduced, ...	7
Number of boilers condemned, ...	1

Engineers' and Firemen's License Law.

	By Individual Examiner.	By Board of Examiners.	Total.
Applications received, ...	—	—	259
Licenses granted:—			
First-class engineers, ...	1	—	1
Second-class engineers, ...	1	1	2
Third-class engineers, ...	15	1	16
Fourth-class engineers, ...	8	—	8
First-class firemen, ...	13	—	13
Second-class firemen, ...	44	—	44
Specials to have charge of second-class plants, ...	—	3	3
Specials to have charge of third-class plants, ...	3	—	3
Specials to operate third-class plants, ...	1	—	1
Other specials to have charge, ...	5	—	5
Total licenses granted, ...	91	5	96
Applicants rejected, ...	153	16	174

Number of examinations by Board of which I was a member,	29
Licenses renewed, 49; licenses exchanged, 75, ...	124
Licenses suspended, 2; licenses revoked, 3, ...	5

Complaints investigated: engineers' and firemen's license law,	22
Prosecutions for violation of engineers' and firemen's license law,	1
Fines imposed for violation of engineers' and firemen's license law,	\$10

Operators of Hoisting Machinery.

Applications received for license as operators of hoisting machinery,	4
Licenses granted,	4

REPORT OF INSPECTOR EDWARD A. MORES.¹*Boiler Inspection Law.*

Boilers inspected internally, 104; externally, 74,	178
Defects found on boilers,	64
Boilers ordered repaired,	22
Appendages ordered, or defective appendages ordered repaired or replaced,	340
Number of boilers on which hydrostatic pressure test was applied,	70
Number of boilers on which maximum allowable pressure was reduced,	12
Complaints investigated: boiler inspection law,	2

Engineers' and Firemen's License Law.

	By Individual Examiner.	By Board of Examiners.	Total.
Applications received,	—	—	54
Licenses granted:—			
Third-class engineers,	1	—	1
Fourth-class engineers,	3	—	3
Portable engineers,	1	—	1
First-class firemen,	1	—	1
Second-class firemen,	17	—	17
Specials to have charge of third-class plants,	6	—	6
Total licenses granted,	29	—	29
Applicants rejected,	32	—	32

Number of examinations by Board of which I was a member,	32
Licenses exchanged,	43
Complaints investigated: engineers' and firemen's license law,	13

Operators of Hoisting Machinery.

Applications received for license as operators of hoisting machinery,	1
Licenses granted,	1

¹ Appointed March 14, 1912.

REPORT OF INSPECTOR GEORGE D. MACKINTOSH.

Boiler Inspection Law.

Boilers inspected internally, 169; externally, 102, ...	271
Defects found on boilers, ...	36
Boilers ordered repaired, ...	16
Appendages ordered, or defective appendages ordered repaired or replaced, ...	405
Number of boilers on which hydrostatic pressure test was applied, ...	139
Number of boilers on which maximum allowable pressure was reduced, ...	23
Number of boilers condemned, ...	1
Complaints investigated: boiler inspection law, ...	1

Engineers' and Firemen's License Law.

	By Individual Examiner.	By Board of Examiners.	Total.
Applications received, ...	—	—	230
Licenses granted: —			
First-class engineers, ...	1	2	3
Second-class engineers, ...	2	1	3
Third-class engineers, ...	13	—	13
Fourth-class engineers, ...	5	—	5
Steam-fire engineers, ...	1	—	1
First-class firemen, ...	11	2	13
Second-class firemen, ...	25	—	25
Specials to have charge of third-class plants, ...	1	—	1
Specials to operate second-class plants, ...	2	—	2
Other specials to have charge, ...	2	—	2
Other specials to operate, ...	2	—	2
Total licenses granted, ...	65	5	70
Applicants rejected, ...	164	45	209

Number of examinations by Board of which I was a member, ...	73
Licenses renewed, 66; licenses exchanged, 173, ...	239
Licenses suspended, 3; licenses revoked, 5, ...	8
Complaints investigated: engineers' and firemen's license law, ...	36
Prosecutions for violation of engineers' and firemen's license law, ...	3
Fines imposed for violation of engineers' and firemen's license law, ...	\$35

Operators of Hoisting Machinery.

Applications received for license as operators of hoisting machinery, ...	12
Licenses granted, ...	6
Applicants rejected, ...	2
Complaints investigated, ...	1

REPORT OF INSPECTOR JAMES W. EVANS.

Boiler Inspection Law.

Boilers inspected internally, 149; externally, 30, ...	179
Defects found on boilers, ...	125
Boilers ordered repaired, ...	35
Appendages ordered, or defective appendages ordered repaired or replaced, ...	160
Number of boilers on which hydrostatic pressure test was applied, ...	47
Number of boilers on which maximum allowable pressure was reduced, ...	11
Number of boilers condemned, ...	1
Complaints investigated: boiler inspection law, ...	2

Engineers' and Firemen's License Law.

	By Individual Examiner.	By Board of Examiners.	Total.
Applications received, ...	—	—	238
Licenses granted:—			
First-class engineers, ...	2	2	4
Second-class engineers, ...	4	2	6
Third-class engineers, ...	10	—	10
Fourth-class engineers, ...	18	—	18
Steam-fire engineers, ...	1	—	1
First-class firemen, ...	17	—	17
Second-class firemen, ...	42	—	42
Specials to have charge of third-class plants, ...	7	—	7
Specials to operate first-class plants, ...	—	2	2
Specials to operate second-class plants, ...	2	—	2
Specials to operate third-class plants, ...	3	—	3
Other specials to have charge, ...	8	—	8
Other specials to operate, ...	4	—	4
Total licenses granted, ...	113	6	124
Applicants rejected, ...	90	22	112

Number of examinations by Board of which I was a member, ...	39
Licenses renewed, 29; licenses exchanged, 182, ...	211
Licenses suspended, 1; licenses revoked, 4, ...	5
Complaints investigated: engineers' and firemen's license law, ...	21
Prosecutions for violation of engineers' and firemen's license law, ...	4
Fines imposed for violation of engineers' and firemen's license law, ...	\$10

Operators of Hoisting Machinery.

Applications received for license as operators of hoisting machinery, ...	85
Licenses granted, ...	113
Applicants rejected, ...	10
Complaints investigated, ...	3
Licenses revoked, ...	1

REPORT OF INSPECTOR JOHN McGRATH.

Boiler Inspection Law.

Boilers inspected internally, 51; externally, 49, ...	100
Defects found on boilers, ...	65
Boilers ordered repaired, ...	4
Appendages ordered, or defective appendages ordered repaired or replaced, ...	72
Number of boilers on which hydrostatic pressure test was applied, ...	52
Number of boilers on which maximum allowable pressure was reduced, ...	1
Number of boilers condemned, ...	1

Engineers' and Firemen's License Law.

	By Individual Examiner.	By Board of Examiners.	Total.
Applications received, ...	—	—	375
Licenses granted: —			
First-class engineers, ...	10	2	12
Second-class engineers, ...	19	4	23
Third-class engineers, ...	28	2	30
Fourth-class engineers, ...	4	—	4
Steam-fire engineers, ...	1	—	1
First-class firemen, ...	35	2	37
Second-class firemen, ...	68	—	68
Specials to have charge of second-class plants, ...	—	3	3
Specials to have charge of third-class plants, ...	9	—	9
Specials to operate second-class plants, ...	2	—	2
Specials to operate third-class plants, ...	1	—	1
Other specials to have charge, ...	3	—	3
Other specials to operate, ...	3	—	3
Total licenses granted, ...	183	13	196
Applicants rejected, ...	149	39	188

Number of examinations by Board of which I was a member,	72
Licenses renewed, 91; licenses exchanged, 184, ...	275
Complaints investigated: engineers' and firemen's license law,	26

Operators of Hoisting Machinery.

Applications received for license as operators of hoisting machinery, ...	22
Licenses granted, ...	12

REPORT OF INSPECTOR STURGIS C. BAXTER.

Boiler Inspection Law.

Boilers inspected internally, 181; externally, 58, ...	239
Defects found on boilers, ...	17
Boilers ordered repaired, ...	15
Appendages ordered, or defective appendages ordered repaired or replaced, ...	129
Number of boilers on which hydrostatic pressure test was applied, ...	61
Number of boilers on which maximum allowable pressure was reduced, ...	5

Engineers' and Firemen's License Law.

	By Individual Examiner.	By Board of Examiners.	Total.
Applications received, ...	-	-	397
Licenses granted: —			
First-class engineers, ...	4	1	5
Second-class engineers, ...	2	2	4
Third-class engineers, ...	21	2	23
Fourth-class engineers, ...	5	-	5
Portable engineers, ...	2	-	2
Steam-fire engineers, ...	2	-	2
First-class firemen, ...	37	-	37
Second-class firemen, ...	102	1	103
Specials to have charge of second-class plants, ...	-	5	5
Specials to have charge of third-class plants, ...	9	-	9
Specials to operate first-class plants, ...	-	5	5
Other specials to have charge, ...	12	-	12
Other specials to operate, ...	5	-	5
Total licenses granted, ...	201	16	217
Applicants rejected, ...	138	32	170

Number of examinations by Board of which I was a member,	65
Licenses renewed, 124; licenses exchanged, 179,	303
Complaints investigated: engineers' and firemen's license law,	13
Prosecutions for violation of engineers' and firemen's license law,	3
Fines imposed for violation of engineers' and firemen's license law,	\$70 and costs.

Operators of Hoisting Machinery.

Applications received for license as operators of hoisting machinery,	59
Licenses granted,	41
Applicants rejected,	6

REPORT OF INSPECTOR HERBERT A. SULLIVAN.

Boiler Inspection Law.

Boilers inspected internally, 212; externally, 117,	329
Defects found on boilers,	306
Boilers ordered repaired,	33
Appendages ordered, or defective appendages ordered repaired or replaced,	228
Number of boilers on which hydrostatic pressure test was applied,	136
Number of boilers on which maximum allowable pressure was reduced,	19
Number of boilers condemned,	8

Engineers' and Firemen's License Law.

	By Individual Examiner.	By Board of Examiners.	Total.
Applications received,	—	—	465
Licenses granted:—			
First-class engineers,	3	3	6
Second-class engineers,	2	—	2
Third-class engineers,	20	—	20
Fourth-class engineers,	5	—	5
Portable engineers,	2	—	2
Steam-fire engineers,	1	—	1
First-class firemen,	26	—	26
Second-class firemen,	114	—	114
Specials to have charge of second-class plants,	—	1	1
Specials to operate first-class plants,	—	1	1
Specials to operate second-class plants,	1	—	1
Other specials to have charge,	10	—	10
Other specials to operate,	5	—	5
Total licenses granted,	189	5	194
Applicants rejected,	253	28	281

Number of examinations by Board of which I was a member,	37
Licenses renewed, 89; licenses exchanged, 309,	398
Licenses revoked,	1

Complaints investigated: engineers' and firemen's license law,	31
Prosecutions for violation of engineers' and firemen's license law,	12
Fines imposed for violation of engineers' and firemen's license law,	\$200

Operators of Hoisting Machinery.

Applications received for license as operators of hoisting machinery,	3
Licenses granted,	2
Applicants rejected,	1

REPORT OF INSPECTOR PERCY B. BRAGDON.¹*Boiler Inspection Law.*

Boilers inspected internally, 76; externally, 33,	109
Defects found on boilers,	163
Boilers ordered repaired,	15
Appendages ordered, or defective appendages ordered repaired or replaced,	153
Number of boilers on which hydrostatic pressure test was applied,	30
Number of boilers on which maximum allowable pressure was reduced,	6
Complaints investigated: boiler inspection law,	4

Engineers' and Firemen's License Law.

	By Individual Examiner.	By Board of Examiners.	Total.
Applications received,	-	-	75
Licenses granted:—			
First-class engineers,	-	2	2
Second-class engineers,	-	2	2
Third-class engineers,	2	2	4
Fourth-class engineers,	4	-	4
Portable engineers,	1	-	1
Steam-fire engineers,	1	-	1
First-class firemen,	11	-	11
Second-class firemen,	24	-	24
Specials to have charge of third-class plants,	1	-	1
Specials to operate first-class plants,	-	3	3
Specials to operate second-class plants,	4	-	4
Specials to operate third-class plants,	2	-	2
Total licenses granted,	50	9	59
Applicants rejected,	42	11	53

Number of examinations by Board of which I was a member,	36
Licenses exchanged,	129
Complaints investigated: engineers' and firemen's license law,	8

¹ Appointed March 14, 1912.

REPORT OF INSPECTOR JAMES B. DESHAZO.

Boiler Inspection Law.

Boilers inspected internally, 131; externally, 33, ...	164
Defects found on boilers, ...	308
Boilers ordered repaired, ...	18
Appendages ordered, or defective appendages ordered repaired or replaced, ...	137
Number of boilers on which hydrostatic pressure test was applied, ...	46
Number of boilers on which maximum allowable pressure was reduced, ...	16

Engineers' and Firemen's License Law.

	By Individual Examiner.	By Board of Examiners.	Total.
Applications received, ...	—	—	518
Licenses granted:—			
First-class engineers, ...	3	5	8
Second-class engineers, ...	13	4	17
Third-class engineers, ...	41	—	41
Fourth-class engineers, ...	28	—	28
Portable engineers, ...	6	—	6
First-class firemen, ...	56	—	56
Second-class firemen, ...	136	—	136
Specials to have charge of second-class plants, ...	—	3	3
Specials to have charge of third-class plants, ...	6	—	6
Specials to operate first-class plants, ...	—	3	3
Other specials to have charge, ...	9	—	9
Other specials to operate, ...	5	—	5
Total licenses granted, ...	303	15	318
Applicants rejected, ...	179	9	188

Number of examinations by Board of which I was a member, ...	60
Licenses renewed, 55; licenses exchanged, 304, ...	359
Licenses suspended, 3; licenses revoked, 2, ...	5
Complaints investigated: engineers' and firemen's license law, ...	44

Operators of Hoisting Machinery.

Applications received for license as operators of hoisting machinery, ...	4
Licenses granted, ...	11

REPORT OF INSPECTOR HARRY E. MORTON.

Boiler Inspection Law.

Boilers inspected internally, 96; externally, 30, ...	126
Defects found on boilers, ...	7
Boilers ordered repaired, ...	4
Appendages ordered, or defective appendages ordered repaired or replaced, ...	245
Number of boilers on which hydrostatic pressure test was applied, ...	36
Number of boilers on which maximum allowable pressure was reduced, ...	2

Engineers' and Firemen's License Law.

	By Individual Examiner.	By Board of Examiners.	Total.
Applications received, ...	—	—	334
Licenses granted: —			
First-class engineers, ...	3	1	4
Second-class engineers, ...	4	2	6
Third-class engineers, ...	19	—	19
Fourth-class engineers, ...	8	—	8
Portable engineers, ...	2	—	2
Steam-fire engineers, ...	2	—	2
First-class firemen, ...	14	—	14
Second-class firemen, ...	33	—	33
Specials to have charge of second-class plants, ...	—	4	4
Specials to have charge of third-class plants, ...	4	—	4
Specials to operate second-class plants, ...	1	—	1
Specials to operate third-class plants, ...	4	—	4
Other specials to have charge, ...	5	—	5
Other specials to operate, ...	2	—	2
Total licenses granted, ...	101	7	108
Applicants rejected, ...	150	21	171

Number of examinations by Board of which I was a member, ...	27
Licenses renewed, 99; licenses exchanged, 171, ...	270
Complaints investigated: engineers' and firemen's license law, ...	8
Prosecutions for violation of engineers' and firemen's license law, ...	6
Fines imposed for violation of engineers' and firemen's license law, ...	\$40

Operators of Hoisting Machinery.

Applications received for license as operators of hoisting machinery, ...	11
Licenses granted, ...	5

REPORT OF INSPECTOR FREEMAN H. SANBORN.

Boiler Inspection Law.

Boilers inspected internally, 93; externally, 82, ...	175
Defects found on boilers, ...	22
Boilers ordered repaired, ...	17
Appendages ordered, or defective appendages ordered repaired or replaced, ...	182
Number of boilers on which hydrostatic pressure test was applied, ...	91
Number of boilers on which maximum allowable pressure was reduced, ...	18
Number of boilers condemned, ...	3
Complaints investigated: boiler inspection law, ...	1

Engineers' and Firemen's License Law.

	By Individual Examiner.	By Board of Examiners.	Total.
Applications received, ...	—	—	323
Licenses granted:—			
First-class engineers, ...	3	—	3
Second-class engineers, ...	6	—	6
Third-class engineers, ...	33	—	33
Fourth-class engineers, ...	32	—	32
Portable engineers, ...	17	—	17
Steam-fire engineers, ...	1	—	1
First-class firemen, ...	30	—	30
Second-class firemen, ...	90	—	90
Specials to have charge of third-class plants, ...	1	—	1
Specials to operate first-class plants, ...	—	4	4
Other specials to have charge, ...	3	—	3
Other specials to operate, ...	4	—	4
Total licenses granted, ...	220	4	224
Applicants rejected, ...	71	16	87

Number of examinations by Board of which I was a member,	44
Licenses renewed, 87; licenses exchanged, 172, ...	259
Licenses revoked, ...	1
Complaints investigated: engineers' and firemen's license law,	26

Operators of Hoisting Machinery.

Applications received for license as operators of hoisting machinery, ...	2
Licenses granted, ...	2
Complaints investigated, ...	1

REPORT OF INSPECTOR ARTHUR F. LOVERING.

Boiler Inspection Law.

Boilers inspected internally, 139; externally, 77, ...	216
Defects found on boilers, ...	19
Boilers ordered repaired, ...	15
Appendages ordered, or defective appendages ordered repaired or replaced, ...	303
Number of boilers on which hydrostatic pressure test was applied, ...	93
Number of boilers on which maximum allowable pressure was reduced, ...	46
Number of boilers condemned, ...	2
Complaints investigated: boiler inspection law, ...	3
Prosecutions for violation of boiler inspection law, ...	2
Fines imposed for violation of boiler inspection law, ...	\$25

Engineers' and Firemen's License Law.

	By Individual Examiner.	By Board of Examiners.	Total.
Applications received, ...	-	-	318
Licenses granted:—			
Second-class engineers, ...	1	-	1
Third-class engineers, ...	10	-	10
Fourth-class engineers, ...	14	-	14
Portable engineers, ...	11	-	11
First-class firemen, ...	22	-	22
Second-class firemen, ...	80	-	80
Specials to have charge of second-class plants, ...	-	1	1
Specials to have charge of third-class plants, ...	1	-	1
Specials to operate first-class plants, ...	-	5	5
Other specials to have charge, ...	8	-	8
Other specials to operate, ...	4	-	4
Total licenses granted, ...	151	6	157
Applicants rejected, ...	143	17	160

Number of examinations by Board of which I was a member,	62
Licenses renewed, 36; licenses exchanged, 181, ...	217
Licenses revoked, ...	1
Complaints investigated: engineers' and firemen's license law,	10

Prosecutions for violation of engineers' and firemen's license law, ...	1
Fines imposed for violation of engineers' and firemen's license law, ...	\$10

Operators of Hoisting Machinery.

Applications received for license as operators of hoisting machinery, ...	1
Licenses granted, ...	1

REPORT OF INSPECTOR FRANKLIN L. FORBUSH.

Boiler Inspection Law.

Boilers inspected internally, 153; externally, 73, ...	226
Defects found on boilers, ...	81
Boilers ordered repaired, ...	27
Appendages ordered, or defective appendages ordered repaired or replaced, ...	301
Number of boilers on which hydrostatic pressure test was applied, ...	91
Number of boilers on which maximum allowable pressure was reduced, ...	19
Number of boilers condemned, ...	3
Complaints investigated: boiler inspection law, ...	1
Prosecutions for violation of boiler inspection law, ...	1
Fines imposed for violation of boiler inspection law, ...	\$5

Engineers' and Firemen's License Law.

	By Individual Examiner.	By Board of Examiners.	Total.
Applications received, ...	-	-	375
Licenses granted: —			
Second-class engineers, ...	2	-	2
Third-class engineers, ...	21	-	21
Fourth-class engineers, ...	19	-	19
Portable engineers, ...	15	-	15
Steam-fire engineers, ...	1	-	1
First-class firemen, ...	34	1	35
Second-class firemen, ...	68	1	69
Specials to have charge of second-class plants, ...	-	4	4
Specials to have charge of third-class plants, ...	6	-	6
Specials to operate first-class plants, ...	-	4	4
Specials to operate second-class plants, ...	2	1	3
Specials to operate third-class plants, ...	1	-	1
Other specials to have charge, ...	10	-	10
Total licenses granted, ...	179	11	190
Applicants rejected, ...	156	36	192

Number of examinations by Board of which I was a member, ...	68
Licenses renewed, 60; licenses exchanged, 263, ...	323
Licenses suspended, 1; licenses revoked, 2, ...	3
Complaints investigated: engineers' and firemen's license law, ...	33

Prosecutions for violation of engineers' and firemen's license law, ...	4
Fines imposed for violation of engineers' and firemen's license law, ...	\$7.95

Operators of Hoisting Machinery.

Applications received for license as operators of hoisting machinery, ...	8
Licenses granted, ...	6
Applicants rejected, ...	3
Complaints investigated, ...	2

REPORT OF INSPECTOR FRANK C. HINCKLEY.

Boiler Inspection Law.

Boilers inspected internally, 51; externally, 207, ...	258
Defects found on boilers, ...	151
Boilers ordered repaired, ...	51
Appendages ordered, or defective appendages ordered repaired or replaced, ...	949
Number of boilers on which hydrostatic pressure test was applied, ...	154
Number of boilers on which maximum allowable pressure was reduced, ...	1
Number of boilers condemned, ...	2
Complaints investigated: boiler inspection law, ...	2
Prosecutions for violation of boiler inspection law, ...	3
Fines imposed for violation of boiler inspection law, ...	\$90

Engineers' and Firemen's License Law.

	By Individual Examiner.	By Board of Examiners.	Total.
Applications received, ...	-	-	48
Licenses granted: —			
Portable engineers, ...	1	-	1
First-class firemen, ...	1	-	1
Second-class firemen, ...	4	-	4
Specials to have charge of second-class plants, ...	-	1	1
Specials to have charge of third-class plants, ...	1	-	1
Specials to operate first-class plants, ...	-	1	1
Total licenses granted, ...	7	2	9
Applicants rejected, ...	36	18	54

Number of examinations by Board of which I was a member, ...	11
Licenses exchanged, ...	24
Licenses suspended, ...	2
Complaints investigated: engineers' and firemen's license law, ...	14
Prosecutions for violation of engineers' and firemen's license law, ...	1

REPORT OF INSPECTOR WILLIS A. HARLOW.

Boiler Inspection Law.

Boilers inspected internally, 64; externally, 161, ...	225
Defects found on boilers, ...	42
Boilers ordered repaired, ...	20
Appendages ordered, or defective appendages ordered repaired or replaced, ...	323
Number of boilers on which hydrostatic pressure test was applied, ...	169
Number of boilers on which maximum allowable pressure was reduced, ...	4

Engineers' and Firemen's License Law.

	By Individual Examiner.	By Board of Examiners.	Total.
Applications received, ...	-	-	275
Licenses granted: —			
First-class engineers, ...	3	-	3
Second-class engineers, ...	7	2	9
Third-class engineers, ...	52	2	54
Fourth-class engineers, ...	11	-	11
Portable engineers, ...	1	-	1
Steam-fire engineers, ...	4	-	4
First-class firemen, ...	39	-	39
Second-class firemen, ...	72	-	72
Specials to have charge of second-class plants, ...	-	1	1
Specials to have charge of third-class plants, ...	1	-	1
Specials to operate first-class plants, ...	-	1	1
Specials to operate second-class plants, ...	1	-	1
Specials to operate third-class plants, ...	1	-	1
Other specials to have charge, ...	7	-	7
Other specials to operate, ...	2	-	2
Total licenses granted, ...	201	6	207
Applicants rejected, ...	74	12	86

Number of examinations by Board of which I was a member,	17
Licenses renewed, 32; licenses exchanged, 244,	276
Licenses revoked,	1
Complaints investigated: engineers' and firemen's license law,	28
Prosecutions for violation of engineers' and firemen's license law,	2
Fines imposed for violation of engineers' and firemen's license law,	\$10

Operators of Hoisting Machinery.

Applications received for license as operators of hoisting machinery,	8
Licenses granted,	2
Applicants rejected,	6
Complaints investigated,	2

REPORT OF INSPECTOR JOHN B. KEARNEY.

Boiler Inspection Law.

Boilers inspected internally, 103; externally, 50,	153
Defects found on boilers,	48
Boilers ordered repaired,	41
Appendages ordered, or defective appendages ordered repaired or replaced,	123
Number of boilers on which hydrostatic pressure test was applied,	65
Number of boilers on which maximum allowable pressure was reduced,	15
Number of boilers condemned,	1

Engineers' and Firemen's License Law.

	By Individual Examiner.	By Board of Examiners.	Total.
Applications received,	-	-	51
Licenses granted: —			
Third-class engineers,	2	-	2
First-class firemen,	2	-	2
Second-class firemen,	6	-	6
Specials to have charge of third-class plants,	1	-	1
Specials to operate first-class plants,	-	2	2
Specials to operate third-class plants,	1	-	1
Other specials to have charge,	1	-	1
Total licenses granted,	13	2	15
Applicants rejected,	37	19	56

Number of examinations by Board of which I was a member,	42
Licenses renewed, 41; licenses exchanged, 219, ...	260
Licenses suspended, ...	1
Complaints investigated: engineers' and firemen's license law,	19

Operators of Hoisting Machinery.

Applications received for license as operators of hoisting machinery, ...	4
Licenses granted, ...	1

REPORT OF INSPECTOR HERBERT E. MITCHELL.¹

Boiler Inspection Law.

Boilers inspected internally, ...	1
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Engineers' and Firemen's License Law.

Licenses granted:—

Second-class firemen (by individual examiner), ...	1
Applicants rejected (by individual examiner), ...	1
Applicants rejected (by board of examiners), ...	5
Total applicants rejected, ...	6
Number of examinations by Board of which I was a member,	17
Licenses exchanged, ...	53

REPORT OF INSPECTOR WILBERT E. SIMM.

Boiler Inspection Law.

Boilers inspected internally, 122; externally, 32, ...	154
Defects found on boilers, ...	303
Boilers ordered repaired, ...	27
Appendages ordered, or defective appendages ordered repaired or replaced, ...	189
Number of boilers on which hydrostatic pressure test was applied, ...	49
Number of boilers on which maximum allowable pressure was reduced, ...	13
Number of boilers condemned, ...	1

¹ Appointed Sept. 6, 1912.

Engineers' and Firemen's License Law.

	By Individual Examiner.	By Board of Examiners.	Total.
Applications received, ...	-	-	300
Licenses granted: --			
First-class engineers, ...	2	2	4
Second-class engineers, ...	3	1	4
Third-class engineers, ...	10	-	10
Fourth-class engineers, ...	7	-	7
Portable engineers, ...	2	-	2
First-class firemen, ...	19	-	19
Second-class firemen, ...	58	-	58
Specials to have charge of third-class plants, ...	5	-	5
Specials to operate first-class plants, ...	-	2	2
Other specials to have charge, ...	8	-	8
Other specials to operate, ...	4	-	4
Total licenses granted, ...	118	5	123
Applicants rejected, ...	161	55	216

Number of examinations by Board of which I was a member,	66
Licenses renewed, 100; licenses exchanged, 288, ...	388
Licenses suspended, 3; licenses revoked, 1, ...	4
Complaints investigated: engineers' and firemen's license law,	18
Prosecutions for violation of engineers' and firemen's license law, ...	9
Fines imposed for violation of engineers' and firemen's license law, ...	\$200

Operators of Hoisting Machinery.

Applications received for license as operators of hoisting machinery, ...	2
Licenses granted, ...	2
Complaints investigated, ...	1

REPORT OF INSPECTOR BENJAMIN S. WATERMAN.¹*Boiler Inspection Law.*

Boilers inspected internally, 35; externally, 24, ...	59
Defects found on boilers, ...	47
Boilers ordered repaired, ...	9

¹ Appointed March 14, 1912.

Appendages ordered, or defective appendages ordered repaired or replaced, ...	128
Number of boilers on which hydrostatic pressure test was applied, ...	29
Number of boilers on which maximum allowable pressure was reduced, ...	4

Engineers' and Firemen's License Law.

	By Individual Examiner.	By Board of Examiners.	Total.
Applications received, ...	—	—	13
Licenses granted: —			
Second-class engineers, ...	—	1	1
Third-class engineers, ...	3	—	3
Fourth-class engineers, ...	2	—	2
First-class firemen, ...	5	—	5
Second-class firemen, ...	14	—	14
Specials to have charge of third-class plants, ...	2	—	2
Specials to operate second-class plants, ...	1	—	1
Total licenses granted, ...	27	1	28
Applicants rejected, ...	10	35	45

Number of examinations by Board of which I was a member, ...	70
Licenses exchanged, ...	207
Complaints investigated: engineers' and firemen's license law, ...	1

Operators of Hoisting Machinery.

Licenses granted, ...	2
Applicants rejected, ...	2

REPORT OF INSPECTOR GEORGE E. RICHARDSON.¹

Boiler Inspection Law.

Boilers inspected internally, 28; externally, 27, ...	55
Defects found on boilers, ...	8
Boilers ordered repaired, ...	2
Appendages ordered, or defective appendages ordered repaired or replaced, ...	84
Number of boilers on which hydrostatic pressure test was applied, ...	15
Number of boilers on which maximum allowable pressure was reduced, ...	4

¹ Appointed March 14, 1912.

Engineers' and Firemen's License Law.

	By Individual Examiner.	By Board of Examiners.	Total.
Applications received, ...	-	-	296
Licenses granted: —			
Second-class engineers, ...	-	2	2
Third-class engineers, ...	20	1	21
Fourth-class engineers, ...	32	1	33
Portable engineers, ...	11	-	11
First-class firemen, ...	21	-	21
Second-class firemen, ...	101	-	101
Specials to have charge of second-class plants, ...	-	1	1
Specials to have charge of third-class plants, ...	4	-	4
Specials to operate first-class plants, ...	-	1	1
Total licenses granted, ...	189	6	195
Applicants rejected, ...	102	14	116

Number of examinations by Board of which I was a member, 44
 Licenses exchanged, ... 215
 Complaints investigated: engineers' and firemen's license law, 1

GENERAL SUMMARY OF BOILER INSPECTIONS.

INSPECTORS.	Total Number of Boilers Inspected.	Boilers inspected internally.	Boilers inspected externally.	Defects found on Boilers.	Boilers ordered repaired.	Appendages ordered or defective appendages ordered repaired or replaced.	Number of Boilers on which Hydrostatic Pressure Test was applied.	Number of Boilers on which Maximum Allowable Pressure was reduced.	Number of Boilers condemned.	Complaints investigated, Boiler Inspection Law.	Prosecutions for Violation of Boiler Inspection Law.	Fines imposed for Violation of Boiler Inspection Law.
Baxter, Sturgis C.,	239	181	58	17	15	129	61	5	1	4	1	\$6
Bragdon, Percy B.,	109	76	33	163	15	153	30	6	1	4	1	
Bushek, Henry,	314	193	121	469	19	276	87	11	3	4	1	
DeShazo, James B.,	164	131	33	308	18	137	46	16	1	2	1	
Evans, James W.,	179	149	30	125	35	160	47	11	1	1	1	
Ferguson, Charles,	138	71	67	46	10	329	71	7	3	1	1	
Forbush, Franklin L.,	226	153	73	81	27	301	91	19	1	1	1	
Harlow, Willis A.,	225	64	161	42	20	323	169	4	2	2	1	
Hinckley, Frank C.,	258	51	207	151	51	949	154	1	1	1	1	
Kearney, John B.,	153	103	50	48	41	123	65	15	2	1	1	
Levering, Arthur F.,	216	139	77	19	15	303	93	46	2	3	1	
Luck, George A.,	9	8	1	36	16	13	139	23	1	1	1	
Mackintosh, George D.,	271	169	102	65	4	405	52	1	1	1	1	
McCrath, John,	100	51	49	65	4	72	39	1	1	1	1	
Mitchell, Herbert E.,	1	1	—	—	—	—	—	—	—	—	—	
Moran, Edward,	244	218	26	52	37	206	13	2	1	3	1	
Mores, Edward A.,	178	104	74	64	22	340	70	12	1	2	1	
Morton, Harry E.,	126	96	30	7	4	245	36	2	1	1	1	
Ramsay, William W.,	246	148	98	357	13	170	91	16	1	1	1	
Richardson, George E.,	55	28	27	8	2	84	15	4	—	—	—	
Sanborn, Freeman H.,	175	93	82	22	17	182	91	18	3	1	1	
Simms, Wilbert E.,	154	122	32	303	27	189	49	13	1	1	1	
Skoglund, Charles,	166	93	73	26	19	178	66	9	1	1	1	
Sullivan, Herbert A.,	329	212	117	306	33	228	136	19	8	1	1	
Waterman, Benjamin S.,	59	35	24	47	9	128	29	4	1	1	1	
Totals,	4,334	2,689	1,645	2,762	469	5,623	1,703	265	30	24	7	\$126

GENERAL SUMMARY OF EXAMINATIONS.

INSPECTORS.	ENGINEERS' AND FIREMEN'S LICENSE LAW.																
	Applications received.	LICENSES GRANTED. ¹															
		First-class Engineers.	Second-class Engineers.	Third-class Engineers.	Fourth-class Engineers.	Portable Engineers.	Steam-fire Engineers.	First-class Firemen.	Second-class Firemen.	Specials to have Charge of Second- class Plant.	Specials to have Charge of Third- class Plant.	Specials to operate First-class Plant.	Specials to operate Second-class Plant.	Specials to operate Third-class Plant.	Other Specials to have Charge.	Other Specials to operate.	Total Licenses granted.
Baxter, Sturgis C.,	397	5	4	23	5	2	2	37	103	5	9	5	5	1	12	5	217
Bragdon, Percy B.,	75	2	2	4	4	1	1	11	24	3	7	3	3	1	8	2	59
Bushek, Henry,	229	1	5	6	5	7	1	2	44	1	6	1	1	8	2	88	
DeShazo, James B.,	518	8	6	41	28	6	1	56	136	2	6	2	2	3	8	5	318
Evans, James W.,	238	4	10	18	18	1	1	17	42	3	6	3	3	1	8	4	124
Ferguson, Charles,	259	1	2	16	8	15	1	13	44	4	6	4	4	1	3	1	190
Forbush, Franklin L.,	375	2	2	21	19	1	4	35	69	3	6	3	3	1	10	2	207
Harlow, Willis A.,	275	3	9	54	11	1	4	39	72	1	1	1	1	1	7	9	267
Hinckley, Frank C.,	48	1	1	2	1	1	1	1	4	1	1	1	1	1	1	1	15
Kearney, John B.,	51	1	1	10	14	11	1	2	6	1	1	1	1	1	8	4	157
Lovering, Arthur F.,	318	1	1	2	1	1	1	22	80	2	1	1	1	1	1	2	77
Luek, George A.,	222	3	3	8	5	1	1	13	25	2	5	1	1	1	2	2	70
MacKintosh, George D.,	230	3	8	13	5	1	1	21	25	3	9	2	2	1	3	3	196
McGrath, John,	375	12	23	30	4	1	1	37	68	3	9	3	3	1	3	3	1
Mitchell, Herbert E.,	—	6	6	—	—	2	3	41	1	2	9	6	1	2	6	4	289
Moran, Edward,	409	6	6	32	6	2	3	41	163	2	9	6	1	2	6	4	299
Mores, Edward A.,	54	—	1	1	1	1	2	1	17	4	6	6	1	4	5	29	
Morton, Harry E.,	334	4	6	19	8	2	2	14	33	4	13	4	3	2	18	8	108
Ramsay, William W.,	524	3	17	27	18	13	11	43	119	4	13	6	3	2	4	2	294
Richardson, George E.,	296	—	2	21	33	11	—	21	101	1	4	1	1	2	3	1	195
Sanborn, Freeman H.,	323	3	6	33	32	17	1	30	90	—	5	4	1	—	—	4	224
Shinn, Wilbert E.,	300	4	4	10	7	2	2	19	58	—	5	4	—	—	—	4	133
Skoglund, Charles,	94	2	1	10	2	2	—	14	38	1	3	1	—	—	8	4	72
Sullivan, Herbert A.,	465	6	2	20	5	2	1	26	114	1	3	1	1	—	10	5	194
Waterman, Benjamin S.,	13	1	1	3	2	—	—	5	14	—	2	—	1	—	—	—	28
Totals,	6,482	69	122	414	237	94	18	520	1,494	36	105	50	22	19	124	56	3,380

¹ Licenses granted by boards of examiners, since Jan. 1, 1912, are included in above tabulation opposite the respective names of the inspectors serving on such boards.

GENERAL SUMMARY OF EXAMINATIONS — *Concluded.*

INSPECTORS.	ENGINEERS' AND FIREMEN'S LICENSE LAWS — Con.										OPERATORS OF HOISTING MACHINERY LAW.				
	Applicants rejected.	Number of Examinations by Board of which I was a Member.	Licenses renewed.	Licenses exchanged.	Total Renewals and Ex-changes.	Licenses suspended.	Licenses revoked.	Complaints investigated, Engineers' and Firemen's License Law.	Prosecutions for Violation of Engineers' and Firemen's License Law.	Fines Imposed for Violation of Engineers' and Firemen's License Law.	Applications received.	Licenses granted.	Applicants rejected.	Complaints investigated.	Licenses revoked.
Baxter, Sturgis C.,	170	65	124	179	303	—	—	13	3	\$70 00	58	41	6	—	—
Braddon, Percy B.,	53	36	—	129	129	—	—	8	—	—	—	—	—	—	—
Bushek, Henry,	129	20	61	125	186	—	1	32	10	15 00	10	10	—	—	—
DeShazo, James B.,	188	60	55	304	359	—	2	44	—	—	4	11	—	—	—
Evans, James W.,	112	39	29	182	211	—	4	21	4	10 00	85	113	10	3	1
Ferguson, Charles,	174	29	49	175	124	—	3	22	3	10 00	4	4	—	—	—
Forbush, Franklin L.,	192	68	60	263	323	—	2	33	4	7 95	8	6	3	2	—
Harlow, Willis A.,	86	17	32	244	276	—	1	28	2	10 00	8	2	6	2	—
Hinckley, Frank C.,	54	11	—	24	24	—	—	14	1	—	—	—	—	—	—
Kearney, John B.,	56	42	41	219	260	—	—	19	—	—	4	1	—	—	—
Lovering, Arthur F.,	160	62	36	181	217	—	1	10	1	10 00	12	5	—	—	—
Luck, George A.,	136	36	78	31	109	—	—	12	3	35 00	13	6	2	1	—
Mackintosh, George D.,	209	73	66	173	239	—	3	36	—	—	22	12	—	—	—
McGrath, John,	188	72	91	184	275	—	5	26	—	—	23	20	2	—	—
Mitchell, Herbert E.,	6	17	—	53	53	—	—	5	—	—	23	20	2	—	—
Moran, Edward,	167	62	114	235	369	—	1	—	—	—	1	1	—	—	—
Mores, Edward A.,	32	32	—	43	43	—	—	13	6	40 00	11	5	—	—	—
Morton, Harry E.,	171	27	99	171	270	—	—	8	—	—	11	10	1	—	—
Ramsay, William W.,	224	68	61	435	496	—	2	37	4	50 00	11	10	—	—	—
Richardson, George E.,	116	44	—	215	215	—	1	1	—	—	—	—	—	—	—
Sanborn, Freeman H.,	87	44	87	172	259	—	—	26	9	200 00	2	2	—	—	—
Simms, Wilbert E.,	216	66	100	288	388	—	3	18	—	—	2	2	—	—	—
Skoglund, Charles,	105	99	—	148	148	—	—	5	—	—	—	—	1	—	—
Sullivan, Herbert A.,	281	37	89	309	398	—	—	31	12	200 00	3	2	1	—	—
Waterman, Benjamin S.,	45	70	—	207	207	—	—	1	—	—	—	2	2	—	—
Totals,	3,357	1,196	1,272	4,609	5,881	25	24	463	60	\$657 95	281	257	34	11	1

REPORTS OF ACCIDENTS.

REPORTS OF ACCIDENTS TO EMPLOYEES.

The recording and investigation of accidents occurring in connection with industrial activity comprise one of the most important duties pertaining to this force, and it is necessary that this subject should be carefully studied from all sides in order that arrangements may be made and the best method devised, so far as possible, to guard against their continued occurrence. The reporting of accidents is not necessary merely to obtain a record of the number of victims to industrial activity, but is of far more importance; it enables the inspector to classify the various dangerous occupations and machinery, and to become more fully informed as to the best methods for guarding machinery and protecting the lives and limbs of the operatives. It is at all times difficult to determine in just what places, and how, effective guards can be attached to machinery so as to prevent injury to the operatives, as danger to life and limb is found in so many unexpected places. Accidents there will always be which cannot be prevented in consequence of the causes being unforeseen or unexpected and therefore not to be anticipated; but the larger number are found to be due to well-known causes and are consequently under more or less control. It is impossible to estimate the number of accidents which would have occurred during the past year had it not been for the proper safeguarding of machinery, and it is to be noted that each year the proportionate number of accidents to employees per capita is materially decreasing. In the manufacturing of new machinery greater care is now taken to so construct the same that proper guards for the safety of the operatives are, in so far as possible, provided, while additional devices for the elimination of danger, and the resultant protection of the operatives, are being constantly supplied in all branches of industrial activity, a very large number of accidents being undoubtedly prevented by the use of such devices. It is very

gratifying to be able to state that the employers, in general, express a desire and intent to adopt every possible means for the prevention of injury to their employees; and they are ever ready to accept and carry out the various orders or suggestions issued to them by the inspectors of this force. In by far the larger number of instances the cause of the accident cannot be charged to the neglect or indifference of the employer, one of the primary causes being the carelessness of the employee. Complaints have been made to this force that certain employers have failed to furnish the necessary and proper safeguards for machinery, but investigation has shown that the guards have been properly placed and later removed by the employees to facilitate their work, they having thus produced opportunities for fatal or dangerous accidents. It is also the general custom for employers to caution their operatives against cleaning machinery while in motion, but although they are thus cautioned, and are fully cognizant of the danger resulting from this action, we find that many fatal and serious accidents are of frequent occurrence from such cause. By reference to the detailed statement furnished in the latter part of this report it will be noted that a very large number of fatal accidents occurred through carelessness on the part of the persons injured.

The statute providing for the reporting of accidents to the Chief of this force was amended by the Legislature of 1912, such amendment taking effect on the sixth day of May, 1912, the statute in force prior to such date being section 144 of chapter 514 of the Acts of 1909, and reading as follows: —

All manufacturers, manufacturing corporations and proprietors of mercantile establishments shall forthwith send to the chief of the district police a written notice of any accident to an employee while at work in any factory, manufacturing or mercantile establishment operated by them, if the accident results in the death of said employee or in such bodily injury as to prevent him from returning to his work within four days thereafter. The chief of the district police shall forthwith transmit to the sender of such notice a written or printed acknowledgment of the receipt thereof; and he shall keep a record of all accidents so reported to him, of the name of the person injured, of the city or town in which the accident occurred and the cause thereof, and shall include an abstract of said record in his

annual report. Whoever fails to send notice of an accident as required by this section shall be punished by a fine of not more than twenty dollars.

The statute which took effect on May 6, 1912, is chapter 409, Acts of 1912, and reads as follows:—

Chapter five hundred and fourteen of the acts of the year nineteen hundred and nine is hereby amended by striking out section one hundred and forty-four and inserting in place thereof the following:— *Section 144.* All employers shall keep a correct record of any accident occurring to an employee while at work for the employer, whether such accident results in the death of the employee or in such bodily injury as shall prevent him from returning to work within four days thereafter. The said record shall be open to inspection by an inspector of factories of the district police. Within ninety-six hours after the time of the accident a written report thereof shall be furnished to the chief of the district police, upon forms to be furnished by him. No statements contained in any such report shall be admissible in any action arising out of the accident therein reported. The chief of the district police shall furnish the sender with a written or printed acknowledgment of the receipt of the report, shall keep a record of all accidents so reported to him, and shall include an abstract of the record in his annual report. An employer who fails to keep the record or to furnish the report to the chief of the district police required by this section shall be punished by a fine of not less than ten dollars nor more than twenty-five dollars for each offence.

Owing to the fact that these statutes are general in their provisions, no distinction being made as to the particular classes of accidents to be reported, it is necessary that a report shall be forwarded to the Chief of this force of every accident occurring to an employee while at work, whatever may have been the cause of such accident; and while both statutes provide that the report shall be made “if the accident results in the death of the employee or in such bodily injury as shall prevent him from returning to work within four days thereafter,” a very large number of employers report every accident occurring to their employees, however slight it may be, reports being made even in cases where the employee is not prevented from continuing his work. All such reports, however, must be recorded, and an abstract thereof included in the annual report of the Chief of this force.

The total number of accidents reported during the twelve months ending Oct. 31, 1912, was 19,974, of which 164 proved fatal, 1,812 were of a serious nature, and 17,998 were but slight in character. Of these numbers, 50 fatal, 405 serious and 3,949 slight were reported prior to May 6, under the provisions of the first-quoted statute; and 114 fatal, 1,407 serious and 14,049 slight were reported subsequent to May 6, 1912, under the provisions of the statute now in force. A comparison of these figures will show an increase of at least 28 per cent. This is readily accounted for by the fact that the earlier statute provided that report should be made by manufacturers, manufacturing corporations and proprietors of mechanical establishments only, while the present statute provides that reports shall be made by every employer in the Commonwealth, whatever be the nature of his business.

It is to be understood that but a small proportion of the total number of accidents reported occurred in connection with the operation of machinery, as the statement hereafter given will show, there being but 4,691 which owe their origin to such cause. The remaining 15,283 cases were due to causes having no connection with the operation of machinery or motive power of any kind, such cases being fully 77 per cent. of the total number of accidents reported.

Upon the receipt of reports of accidents by this force, they are acknowledged, after which they are carefully read, and in all cases of fatal or serious accidents caused by the operation of machinery, or by motive power of any kind, an investigation is immediately made by the inspector of the district in which the accident occurred, in order to ascertain if such accident was caused in consequence of the improper guarding of machinery, and to take such steps as are found necessary to prevent a recurrence of similar accidents. It is but just to state that in every case investigated no such cause has been found, and a careful reading of the statements hereafter given, in connection with fatal accidents reported, will show that the majority of such accidents could not have been prevented by any means within the power of the employer to furnish. It is also to be noted that a very large number of accidents which have been reported could have been prevented

had reasonable care been taken by the persons sustaining the injuries. This is especially true of those occurring to operatives of machinery, the principal causes of such accidents having been in consequence of cleaning or oiling machinery while in motion, or, in the case of elevator accidents, neglect on the part of the operator to take the necessary precautions when operating the same. Investigation has shown that of the 4,691 accidents resulting from the operation of machinery and elevators, 1,944, or more than 41 per cent., were caused by such carelessness or neglect. In such instances safeguards would form no protection, it being necessary at all times for the operative to exercise due care to prevent accident.

In the following statement the various causes of accidents are given, together with the number of persons injured from each cause; the statement also shows the result of the accident, whether fatal or otherwise:—

CAUSE.	RESULT.	
	Fatal.	Otherwise.
Injured by:—		
Machinery in cotton, woolen and paper mills and shoe factories, .	2	2,817
Machinery in planing or saw mills, iron works or other mechanical works.	2	1,398
Shafting, belting or pulleys, ...	13	214
Elevators, or while working about the same, the majority being caught between car and flooring.	16	194
Falling into elevator wells, ...	6	23
Falling of elevator cars, ...	—	16
Scalds and burns, ...	6	1,079
Receiving electric shock, ...	12	215
Falling, principally from staging, ...	33	2,114
Being struck or crushed by heavy weights, principally railroad accidents.	60	1,781
Flying steel, etc., ...	—	674
Splinters, etc., all being slight in nature, ...	—	1,864
Various causes not specified above, ...	14	7,421
Totals, ...	164	19,810

The following is a statement of the principal accidents, showing the nature of the injuries, and the various parts of the body injured. The fatal accidents are not included therein:—

NATURE OF INJURIES.

INJURIES TO —	One lost.	Two lost.	Three lost.	Four lost.	Fractured.	Broken.	Dislocated.	Cut or Bruised.	Burned or scalded.	General Injuries.	Totals.
Bodies, . . .	-	-	-	-	-	-	-	194	113	476	783
Heads, . . .	-	-	-	-	23	-	-	417	62	61	563
Faces, . . .	-	-	-	-	-	-	-	237	51	27	315
Eyes, . . .	5	1	-	-	-	-	-	812	26	112	956
Ears, . . .	-	-	-	-	-	-	-	27	4	43	74
Noses, . . .	-	-	-	-	11	61	2	112	-	16	202
Neck, . . .	-	-	-	-	-	-	-	16	17	1	34
Collar bones, . .	-	-	-	-	14	18	2	4	-	21	59
Shoulders, . . .	-	-	-	-	23	5	21	83	9	3	144
Arms, . . .	16	5	-	-	89	186	-	453	118	16	883
Elbows, . . .	-	-	-	-	43	4	3	110	16	2	178
Wrists, . . .	-	-	-	-	101	16	1	167	17	8	310
Hands, . . .	15	-	-	-	10	8	4	1,041	112	19	1,209
Fingers, . . .	136	31	5	19	121	61	18	2,154	47	4	2,596
Thumbs, . . .	16	-	-	-	8	18	3	621	15	16	697
Chests, . . .	-	-	-	-	-	-	-	85	14	21	120
Abdomens, . . .	-	-	-	-	-	-	-	61	2	7	70
Backs, . . .	-	-	-	-	-	-	-	91	16	4	111
Sides, . . .	-	-	-	-	-	-	-	36	5	8	49
Ribs, . . .	-	-	-	-	123	87	4	21	-	2	237
Legs, . . .	18	12	-	-	28	44	-	273	52	14	441
Hips, . . .	-	-	-	-	4	3	2	111	5	17	142
Knees, . . .	-	-	-	-	8	4	1	94	21	5	133
Ankles, . . .	-	-	-	-	16	16	4	1,131	41	7	1,215
Feet, . . .	10	5	-	-	7	6	2	897	137	16	1,080
Toes, . . .	-	-	1	-	9	26	4	411	18	9	478

As before stated there were 164 fatal accidents reported during the year, and the circumstances in each of such cases, so far as the same could be obtained by inquiry and investigation, are a part of the records of these reports, and are here given substantially as the written report in each case was filed in this office. In many cases where the accident was not

witnessed, it was impossible to arrive at a certain conclusion regarding its origin, the immediate surroundings alone furnishing information of any kind, and in such cases the cause must remain a matter of conjecture only. In the following statement the name of the person injured is given in each case, also the name of the establishment where the accident occurred, and the city or town in which located, together with the date of the accident: —

FRED COBURN, employed by the Edison Electric Illuminating Company, Boston. On Nov. 2, 1911, while at work repairing wires, he came in contact with a live wire and the shock caused his death.

CORNELIUS DRISCOLL, employed by the Smith & Dove Manufacturing Company, Andover. On Nov. 3, 1911, while attending to his duties as a fireman, the elbow on blow-off pipe of the boiler burst, and he was severely burned about the head, back and chest. He died early the following morning at the Lawrence General Hospital.

EUGENE PARENT, employed by the Kitson Machine Shop, Lowell. On Nov. 13, 1911, while temporarily in charge of an elevator, he left the car at the first floor, and on his return stepped into the elevator shaft, not knowing that the elevator had been run up to the third story. He fell a distance of about 16 feet, landing on a brick-paved flooring, receiving serious injuries which resulted in his death the following day.

PRINCE A. GOODWIN, employed by the Cape Ann Anchor Works, Gloucester. On Nov. 13, 1911, while hoisting a shaft with hand-power crane, the handle slipped and struck him on the head, fracturing his skull. He died at 4 P.M. the same day at the Addison Gilbert Hospital.

MICHELO CIARMELLA, employed by J. C. Coleman & Sons Company, Boston. On Nov. 24, 1911, while attempting to pass under a low piece of shafting, he was caught and whirled around the shafting and thrown into the pit below. His body was badly mutilated and when taken from the pit he was dead.

EDWARD LAMBERT, employed by the Holyoke Machine Company, Holyoke. On Nov. 27, 1911, while operating a planer he was caught in it, his head being crushed, causing instant death.

ENGEL CARLSON, employed by the New England Tank and Tower Company, Boston. On Nov. 28, 1911, while engaged in erecting a steel tower for supporting a water tank on the premises of Hall Brothers Company, West Acton, the staging on which he was working collapsed and he fell to the ground, receiving such injuries as to cause instant death.

JOSEPH BAPTISTE NOEL, employed by the Massachusetts Cotton Mills, Lowell. On Dec. 4, 1911, while riding on an elevator, he looked over the edge of ascending car and was caught between a projecting beam and platform of car, crushing top of head. Death was instantaneous.

TIMOTHY C. BURNS, employed by the Norcross Brothers Company, Hopkinton. On Dec. 6, 1911, while engaged in moving a large piece of granite, it tipped over upon him, crushing him between the granite and a pile of rough stone, and causing such injuries as to result in his death two hours later.

THOMAS DEVENNEY, employed by Rueter & Co., Boston. On Dec. 12, 1911, he was found suffocated in a malt bin. Cause of accident is not known, but it is supposed that he, in some way, lost consciousness and that the malt piled on top of him.

NICHOLAS FAFUTES, employed by Eugene Barry & Sons, Ayer. On Dec. 12, 1911, while engaged in removing skins from the coloring drum, he was caught between the door and supports of the drum, causing immediate death.

JOHN GRUNDY, employed by George T. McLauthlin Company, Boston. On Dec. 13, 1911, while helping to take up an attached shaft and gear case, on an elevator to the floor above, the end of the shaft swung out into the elevator well, forcing him into the well. He fell to the bottom and was instantly killed.

EMILE CLOUATRE, employed by the Franklin Paper Company, Holyoke. On Dec. 16, 1911, while endeavoring to place a belt on a pulley the belt slipped off and wound around the shaft, pulling down the counter-shaft which fell on him, inflicting fatal injuries.

JAMES E. BOYCE, employed by the Hampden Paint and Chemical Company, Springfield. On Dec. 18, 1911, he was found dead in a boiling vat. The cause of the accident is not known.

PETER RENAUD, employed by the American Optical Company, Southbridge. On Dec. 19, 1911, while operating an elevator, his skull was fractured as a result of the sheave and bearings pulling away from the supports and falling into the elevator. He died the same day.

ANTONIO BELAFATTO, employed by the Byfield Woolen Company, Byfield. On Dec. 19, 1911, while working on a felt-hardening machine the hoisting rope broke and the cover of the machine fell on his head, crushing it and causing instant death.

LEMMIE HEBERT (*alias* AB AIR), employed by the Ludlow Manufacturing Associates, Ludlow. On Dec. 20, 1911, while riding on a derrick car, he fell from car to the rails and was crushed by the trucks of the car. He died at the hospital later in the day.

SAMUEL SHAPIRO, employed by F. B. Holmes Company, Chelsea. On Dec. 20, 1911, he was found crushed between an elevator and the side of the well. No one witnessed the accident, and cause is unknown.

CHARLES JEWELL, employed by the New England Gas and Coke Company, Everett. On Dec. 21, 1911, while riding on an empty coal car that was being pushed to the scales to be weighed, he fell from the car, striking his head on a rail, which rendered him unconscious. Before he could be taken off the track one car passed over him, causing instant death.

ERVING A. THAYER, employed by Jerome B. Farnum & Son, Uxbridge. On Dec. 23, 1911, while setting a boiler in position, one half of the front, which was propped up, fell over and crushed his head against the wall, causing concussion of the brain, from which he died in about fifteen minutes.

ISRAEL H. TRASK, employed by Walter Baker & Co., Limited, Milton. On Dec. 28, 1911, while standing on a footbridge over a dam, removing ice floes, the bridge gave way and he was thrown into the water and drowned.

ANDREW ROWAN, employed by the United Shoe Machinery Company, Beverly. On Dec. 29, 1911, he was run down by an auto truck while going home from work. He died before reaching the Beverly Hospital.

SAM HABOD, employed by the American Writing Paper Company, Holyoke. On Jan. 2, 1912, while crossing the railroad tracks, he was struck by a freight car, receiving injuries from which he died three hours later.

MICHAEL DOLAN, employed by the George W. Wheelwright Paper Company, North Leominster. On Jan. 7, 1912, while going down a ladder, he fell and received injuries from which he died later in the day.

GEORGE FADELES, employed by the Arlington Mills, Lawrence. On Jan. 9, 1912, he attempted to jump from an elevator while it was in motion, and was caught between the car and side of well. He was taken to the Lawrence General Hospital where he died at 10 P.M.

CHRISTOPHER JOHNSON, employed by Daniel Marr & Son, Boston. On Jan. 11, 1912, while working on the premises of the American Sugar Refinery Company, South Boston, he was lifting an iron truss when the lashing broke and he fell about 45 feet and was instantly killed.

JOSEPH ROSS, employed by the New York, New Haven & Hartford Railroad Company, Boston. On Jan. 15, 1912, while working about drawbridge, which was being lowered, in some unknown way he was caught under the bridge and killed.

DANA MARSHALL, employed by the American Writing Paper Company, Holyoke. On Jan. 19, 1912, while standing on a plank near shafting, repairing a pipe, his clothes caught on shafting and he was wound around it, receiving injuries from which he died at the City Hospital.

ROBERT ANTHONY, employed by the New England Gas and Coke Company, Everett. On Jan. 19, 1912, while working on a coke crusher, operated by electric power, he crawled into a room where the belt, pulley, etc., were running, apparently to fix the machinery, and was caught in the belt, receiving injuries from which he died the following day.

M. P. KERRIGAN, employed by the New England Gas and Coke Company, Everett. On Jan. 22, 1912, while employed as a motor-man, he was looking out of opening in top of cab when his head was caught between the roof of cab and a quencher, causing a compound fracture of the skull. Died about an hour after the accident.

MICHAEL HENRY, employed by the Deane Steam Pump Company, Holyoke. On Feb. 11, 1912, while repairing a steel smokestack, he fell from the top of the stack to the roof below, and was instantly killed.

THERESA WILSON, employed by the Dartmouth Manufacturing Corporation, New Bedford. On Feb. 12, 1912, while sliding down a banister, she lost her balance and fell a distance of about 25 feet to the concrete floor below. She died almost instantly from a fractured skull.

FRED A. GIEHLER, employed by the Germania Mills, Holyoke. On Feb. 21, 1912, he was found lying on the basement floor in an unconscious condition. It is supposed that he fell from a ladder while oiling the shafting. He died later at the Holyoke City Hospital.

FRANK KRYPOVIES, employed by the Mount Tom Sulphite Pulp Company, Mount Tom. On Feb. 23, 1912, while running a belt from a loose to tight pulley, the stick he was using caught and struck his side, throwing him to the floor. He died at the hospital one-half hour later.

MICHAEL SULLIVAN, employed by the New York, New Haven & Hartford Railroad Company, Boston. On March 2, 1912, while crossing turntable at the engine house, he was struck by an engine and fatally injured.

MOSES BOUDREAU, employed by J. I. Melanson & Brother, Lynn. On March 6, 1912, while crossing trapdoors as elevator was descending, he was caught between traps and guide post, breaking his spine. Removed to the Lynn Hospital, where he died at 9 P.M. the following day.

JOSEPH McDONALD, employed by the Chelmsford Foundry Company, Medford. On March 7, 1912, while working on the premises of the Standard Publishing Company, New Bedford, repairing an elevator, he was caught between the pipe rail braces of elevator and the car, and was crushed to death.

WILLIAM TODD, employed by the Everett Mills, Lawrence. On March 22, 1912, while sitting on top of elevator frame, greasing guides on sides of elevator well, the car was run up too far and he was caught between the beams and frame of elevator. His spine was fractured and he was sent to the Lawrence General Hospital, where he died on March 30, 1912.

MANUEL WALKER, employed by the Wood Worsted Mills, Lawrence. On March 26, 1912, he was kneeling on a belt, oiling a hanger, when the motor was started and he was carried along the belt, struck a timber and fell to top of carding machine. He died later from multiple injuries.

JOSEPH YESI, employed by Faunce & Spinney, Lynn. On March 28, 1912, he attempted to board an elevator which was in motion. He was caught and crushed between floor and elevator. He died at the Lynn Hospital.

RAY THOMAS SWEENEY, employed by the Albert Steiger Company, Springfield. On April 2, 1912, while looking for some money in an elevator pit, another boy ran the elevator to the top of the building to give more light. As the counterweight descended it struck Sweeney on the head, crushed his skull, killing him instantly.

GEORGE KIEFFER, employed by Atwood & McManus, Chelsea. On April 3, 1912, he was found dead with his coat wrapped around shaft, his right side torn open by cogs. It is supposed that he attempted to fix shafting or conveyor, when his clothing caught.

J. PICERO, employed by the Griffin Wheel Company, Chelsea. On April 10, 1912, he was found buried under about 6 inches of sand. It is supposed that the sand slid down, knocked him over and buried him, the fall probably causing the injuries from which he died.

ELMER P. ESTES, employed by the John Foster Company, Hanson. On April 22, 1912, he was repairing a chain on log lifter, when the chain caught in the shafting, and in some way Estes was dragged onto the shafting. His left leg was badly mutilated and he died almost instantly.

EVERETT J. DEEHAN, employed by G. R. Fisk & Co., Boston. On April 22, 1912, he was found dead in the elevator well. It is supposed that he attempted to operate the freight elevator and was caught between the floor of the car and the brick wall.

GLADYS BINN, fatally injured in shafting of J. B. LeBaron's Saw Mill, Middleborough. On April 24, 1911, while playing outside the mill, her clothing caught on shafting and carried her around it. Before the machinery could be stopped she was fatally injured.

ERIK GUSTAF NORDSTROM, employed by the Worcester Electric Light Company, Worcester. On April 25, 1912, while working on top of a pole putting a primary wire into a fuse box, he came in contact with a live wire and received a shock which caused his death.

ISRAEL VEEVERS, employed by the American Thread Company, Fall River. On April 26, 1912, while operating a telfer car, which was suspended on a wooden structure, he ran the car through an open switch, falling with it to the ground, 30 feet below. He was instantly killed.

CLARENCE L. CURTIS, employed by the Worcester Suburban Electric Company, Uxbridge. On May 1, 1912, while removing a porcelain insulator from a live wire, he came into contact with the wire and was instantly killed. The accident occurred at Grafton Center.

SIMON BOOZER, employed by the Lawrence Felting Company, Millville. On May 2, 1912, while tending felt on a hardening machine, in some unknown way his head came in contact with the belt and pulley, causing multiple injuries, from which he died at 9 P.M. the following day.

JOHN MOKOVAGE, employed by the American Steel and Wire Company, Worcester. On May 8, 1912, while pushing a wheelbarrow, he was struck by a narrow-gauge engine. His pelvis was crushed and he received internal injuries, dying about three hours later at the City Hospital.

BRANISLAW MASLOWSKI, employed by the Worcester Consolidated Street Railway Company, Worcester. On May 8, 1912, he was caught in the gears of a coal crusher. His head and the upper portion of his body passed through the gears, causing instant death.

D. SMITH, employed by the Malden and Melrose Gas Light Company, Malden. On May 14, 1912, he was in a trench; the banking caved in and fell on high-pressure gas line. The dirt pinned him in the trench and a lighted lantern also fell in. The gas immediately took fire, and he, being unable to extricate himself, was overcome and died as the result of his injuries.

THOMAS FORD, employed by the East Boston Gas Company, Chelsea. On May 20, 1912, his body was found in a holder pit, apparently drowned, the depth of water being about 20 feet.

JEREMIAH RILEY, employed by the W. P. Leavitt Sons Company, Newton. On May 23, 1912, a staging gave way and he fell backwards, striking the back of his head on a gutter about 6 feet below, fracturing his skull. He died about forty minutes later.

OSCAR MACKIE, employed by the American Steel and Wire Company, Worcester. On May 24, 1912, he was caught between an unloading brow and a bin, receiving internal injuries from which he died at the City Hospital two days later.

BRIAN B. GALLIGAN, employed by the Quincy Market Cold Storage and Warehouse Company, Boston. On May 24, 1912, he was working on a swing stage and fell to the floor of the fireroom, dying about two hours later at the Relief Hospital.

MALCOLM MCKENZIE, employed by Goddard Bros., Lynn. On May 26, 1912, he was found in head house, on roof of building in which the elevator machinery is installed. The medical examiner gave as the cause of death, "accidental electric shock."

JAMES FERGUSON, employed by Drake Bros. Company, Boston. On May 26, 1912, his body was found wedged between elevator car and wall. As no one witnessed the accident it is not known how it occurred.

VICTOR DROGAN, employed by Dwight Manufacturing Company, Chicopee. On May 29, 1912, he was found dead, with his arm and part of shoulder and chest drawn into beater of picker. The arm was broken in many places, ribs broken, lungs crushed and heart exposed. It is supposed that he must have raised the cover of the beater while it was running.

WILLIAM ARMSTRONG, employed by the Bay State Cleaning Company, Boston. On June 4, 1912, he was cleaning windows on the third story, standing on the outside ledge when he fell. He was taken to the City Hospital and died shortly after arrival.

G. DEBEICH, employed by the North Packing and Provision Company, Somerville. On June 7, 1912, he was caught between elevator car and gate. He was immediately taken to the hospital, where it was found he had a fracture of the skull and hemorrhage of the brain. He died about an hour later.

A. BRYNHELLSDEN and C. SOLEAN, employed by the Fore River Ship Building Company, Quincy. On June 11, 1912, they were crushed by a heavy iron plate which fell from a travelling crane, the bolts supporting same having broken. Mr. Brynhellsden was removed to the company's hospital, where he died four hours later, while Mr. Solean was instantly killed.

J. P. SULLIVAN, employed by the Boston & Albany Railroad Company, Boston. On June 13, 1912, he was attempting to couple the cars which did not hitch the first time; he stepped in to open the knuckle and was crushed in the abdomen and died.

JULIUS C. CONVERSE, employed by Rice, Barton & Fales M. & I. Company, Worcester. On June 19, 1912, he was running a planer, being on the wrong side of the planer, and was caught by it, one leg being broken, crushed and twisted; he also received serious injury to one hand. He was hurried to the hospital, but died about two hours after from the shock and loss of blood.

BARTLEY COFFEE, employed by the Hugh Nawn Contracting Company, Boston. On June 19, 1912, he went down to release a chain rope which was around a drain pipe 30 feet below street level. About two minutes later he was found lying across the pipe helpless. He was immediately taken to the City Hospital, but died on the way.

THOMAS OVERBY, employed by F. B. Washburn & Co., Brockton. On June 21, 1912, he was caught between a freight car and tail-board of wagon. His head was crushed and he died almost instantly.

CHARLES M. FIELD, employed by the Wilkins Press, Boston. On June 22, 1912, the janitor of the building found his body in the elevator well, and the car was then at the fifth floor. Blood and hair were on the side of well at third floor, which would indicate that the accident occurred at that floor.

BOLESTAN SZIMANSKY, employed by Fox Branch of General Baking Company, Boston. On June 25, 1912, he was caught between elevator and well and his body was drawn up where it was crushed. He was dead when removed from elevator.

HENRY LEE, employed by Boston & Albany Railroad Company, Boston. On June 26, 1912, while standing on a roof, he lost his balance and fell to the ground, a distance of about 22 feet, the accident resulting in his death.

JOSEPH JACQUES, employed by the Wamsutta Mills, New Bedford. On June 27, 1912, he was killed by the falling upon him of some bales of cotton among which he was working. The medical examiner pronounced probable cause of death as suffocation.

ALVIN R. NELSON, employed by the Bay State Street Railway Company, Boston. On July 1, 1912, he jumped from car of which he was in charge and ran around in front of another car, by which

he was struck and thrown into the street. He was unconscious when picked up and was taken to the hospital, where he died soon after arriving.

LEBARRON BUCK, employed by Pitman & Brown Company, Lynn. On July 1, 1912, he fell with staging, receiving internal injuries from which he died nine hours later.

N. J. MALBOUEF, employed by New York, New Haven & Hartford Railroad Company, at Worcester. On July 3, 1912, he was last seen on top of cars, but when found was on track, his chest being crushed, evidently having fallen from cars when coupling was made. He was taken to the Worcester City Hospital and died three hours later.

WILLIAM FLAHERTY, employed by the New York, New Haven & Hartford Railroad Company, Boston. On July 3, 1912, he started to cross the tracks and was struck by a switching engine, having left leg cut off above the knee and head and body cut and bruised. He died at the Boston City Hospital a few hours after arrival.

MERLE H. BRITTEN, employed by Boston Elevated Railway Company, Boston. On July 4, 1912, he was crushed between two cars, causing death within one hour.

JOSEPH BREENAS, employed by the Archibald Wheel Company, Lawrence. On July 6, 1912, he was throwing off a belt, the stick which he was using for the purpose caught on the belt and struck him in the stomach, causing an internal rupture. At the Lawrence General Hospital an operation was performed, but he died.

ROCCO DIODATO, employed by the General Electric Company, Pittsfield. On July 6, 1912, while going down a ladder, he slipped and fell head first on a large iron flask, receiving a fractured skull, multiple wounds and contusions, which proved fatal.

MARTIN CONNOLLY, employed by the Staples Coal Company, Boston. On July 6, 1912, he lost his balance and fell a distance of 42 feet, striking his head and dying instantly.

COMELUKE POWELL, employed by the Boston & Albany Railroad Company, at Becket. On July 7, 1912, he was struck by a locomotive while at work and killed.

JAMES HENNESSY, employed by the Merchants Steam Lighter Company, Boston. On July 8, 1912, he was employed as watchman on a lighter, and during the night fell overboard, and was drowned.

JOSEPH LISEE, employed by the Boston & Albany Railroad Company, at Adams. On July 12, 1912, he was found on the railroad track dead, having evidently been struck by an engine or train.

GEORGE LEARY, employed by the Berkshire Street Railway Company, Pittsfield. On July 13, 1912, he, being employed as conductor, was collecting fares on running board of a car, and struck his head against trolley pole, being knocked off the car; he received a broken jaw and severe injuries to his head. He died three days later at the hospital.

ALBERT BLAUCHETTE, employed by the New England Brick Company, Boston. On July 16, 1912, while working at Medford on a shed, the roof gave way and he fell to the ground, being instantly killed.

HARRY CULLEN, employed by the trustees of Frederick L. Ames, Boston. On July 17, 1912, he was caught between elevator car and wall of well, as a result of which he died in a very short time.

JOHN GOFF, employed by the Boston & Albany Railroad Company, at Wellesley. On July 17, 1912, he climbed to the top of a caboose, was struck by a bridge and instantly killed.

J. HONEY, employed by A. C. Lawrence Leather Company, Peabody. On July 18, 1912, he was about to hang a wet apron over a switch when he received an electric shock and was killed.

J. HALL, employed by Woodbury & Leighton Company, Boston. On July 19, 1912, a bucket of concrete dropped, striking him, and he was instantly killed.

E. J. DELPHA, employed by B. B. Noyes & Co., Greenfield. On July 22, 1912, he fell from a staging on blacksmith shop building, a distance of 18 or 20 feet, and broke his back. He lived three and one-half days.

PHILIP CUMMINGS, employed by the Boston & Albany Railroad Company, at Springfield. On July 25, 1912, he was walking on top of a freight car and failed to notice an overhead bridge. He was struck and so injured that he died three hours later in the Springfield Hospital.

DANIEL DYESO, employed by Hugh Nawn Contracting Company, Boston. On July 25, 1912, he was standing on top of the sand in a hopper, shovelling it back into the corners, when the sand caved in upon him. When he was recovered, he was dead. The accident occurred at Sharon Heights.

ROBERT HASKELL, employed by Jackson & Tortat, Peabody. On July 27, 1912, a piece of iron blew out of a hot-water boiler and the hot water struck Mr. Haskell on the neck, shoulders and back, scalding him so badly that he died two days later.

WARREN B. THOMAS, employed by Horace L. Hotchkiss, trustee, Boston. On July 29, 1912, he slipped and fell, dropping his lantern, which broke, setting fire to his clothing. He was seriously burned, and sent to the City Hospital, where he died two days later.

SALVATORE FERRARA, employed by B. T. Cosolite & Son, Boston. On July 31, 1912, while trying to save a hod of stock, which was falling, he fell from fourth story to cellar. He was taken to the City Hospital and died five hours after.

CHARLES HENRY TUCK, employed by the American Express Company, Boston. He was thrown from a wagon in such a manner as to fracture his skull, causing death about five minutes later. The accident occurred at Worcester.

FRANK B. YEADON, employed by the Suburban Gas and Electric Company, Revere. A pole which was being removed slipped and struck him on the side of the head, fracturing his skull and causing his death.

MARTIN FLAHERTY, employed by Hunt Spiller Manufacturing Corporation, Boston. On Aug. 2, 1912, a row of pig iron fell over on and injured him. He died about a week later at the City Hospital.

JOHN J. GILMARTIN, employed by the Boston Elevated Railway Company, Boston. On Aug. 3, 1912, he slipped and caught hold of an iron girder, his knees touching the third rail, causing electrocution.

CECIL M. BARLOW, employed by the General Electric Company, Lynn. On Aug. 7, 1912, his hands came into contact with the metal at each end of handle of an induction motor, allowing current to pass through body, causing death from electric shock.

W. J. TIRRELL, Jr., and F. CAMPBELL, employed by New York, New Haven & Hartford Railroad Company, Boston. On Aug. 8, 1912, a train was derailed near Columbia Road bridge, and the engineer and fireman here named were killed by the overturning of the engine.

PAOLO DI CICCIO, employed by the Barre Wool Combing Company, Ltd., South Barre. On Aug. 9, 1912, in trying to adjust a belt with his foot, his foot became caught in the belt and he was carried around, being instantly killed.

W. G. GREENMAN, employed by New York, New Haven & Hartford Railroad Company, Providence, R. I. On Aug. 10, 1912, he was employed as a freight flagman, and was found on the track dead, with head and one arm cut off. It is supposed he fell from the train and was run over. The accident happened in Mansfield.

S. O. CHENEY, employed by New York, New Haven & Hartford Railroad Company, Providence, R. I. On Aug. 8, 1912, at Green Lodge, he fell from car on rear of his train. His left arm was fractured and he received multiple contusions of head and body from which he died.

JOHN MCCABE, employed by New York, New Haven & Hartford Railroad Company, Freetown. On Aug. 10, 1912, he was firing an engine which ran into the rear end of a train; he jumped before the collision came, and was instantly killed.

J. EARLEY, employed by the New York, New Haven & Hartford Railroad Company, Boston. On Aug. 12, 1912, he was hit by a tender and thrown down, both legs being run over. He died a few hours later at the Massachusetts General Hospital.

ROBERT C. BURRINGTON, employed by S. Porter & Co., Worcester. On Aug. 12, 1912, he fell from scaffold in storehouse, receiving fractured skull and broken ribs. He was removed to the City Hospital, but died without recovering consciousness.

NICOLE CILENZZO, employed by the New York, New Haven & Hartford Railroad Company, Boston. On Aug. 13, 1912, he failed to get out of the way when a train passed and was struck by the engine, his skull being fractured. He died at the Massachusetts General Hospital the next morning.

EDWARD BURNS, employed by the Lundin Electric and Machine Company, Boston. On Aug. 16, 1912, he was working in a manhole at Dedham, where he was found dead. It is supposed that he received an electric shock.

THOMAS CRAGIN, employed by the city of Boston, public works department. On Aug. 16, 1912, he was found in the fire-room of the ferry boat "Revere," unconscious, with an ugly wound on head. It is supposed that he was struck by the crank. He died at the Relief Hospital about five hours after.

E. L. DRISCOLL, employed by Cushman & Co., Brighton. On Aug. 16, 1912, he fell off team, which he was driving, and struck on his head. He died in the ambulance on the way to the hospital.

TIMOTHY SHEEDY, employed by the Lowell Bleachery, Lowell. On Aug. 17, 1912, he was employed as night watchman, and probably went to the window for fresh air, lost his balance and fell to the ground, a distance of four stories, sustaining a fractured skull. He was removed to the hospital, where he died two days later.

WILLIAM HANSBURY, employed by the city of Boston, public works department. On Aug. 19, 1912, he was found in air compartment on scow, having apparently fallen through hatchway or been overcome by gas while pumping out water. He was taken to the Relief Hospital, where he died a few moments after arrival.

STUART McNICOL, employed by Patterson, Wylde & Co., Boston. On Aug. 20, 1912, he was found sitting on a case apparently dazed; he was taken to the Relief Hospital, but died on the way in the ambulance.

SAM NAPOL, employed by Hooper, Waters Company, Boston. On Aug. 20, 1912, at Brookline, he came in contact with an electric wire in front of building in course of construction and received a shock which proved fatal.

THOMAS MULANIFF, employed by R. H. Howes Construction Company of New York. On Aug. 22, 1912, at Lowell, he fell through shaft from fifth floor to first, striking on a hoist. He received several broken ribs, a broken nose and internal injuries from which he died the following morning at the hospital.

FRANK PASQUALONE, employed by the New York, New Haven & Hartford Railroad Company, Boston. On Aug. 22, 1912, at Quiney, he was working as a section man and delayed too long in leaving the track, being struck by a train. He died shortly afterwards.

EDWARD McCORMICK, employed by the Berkshire Street Railway Company, Pittsfield. On Aug. 24, 1912, while crossing the New York, New Haven & Hartford Railroad Company tracks to get a pail of water, he was struck by a train, receiving injuries from which he died on Sept. 16, 1912.

JOSEPH CLEMENTO, employed by the Rockport Granite Company, Gloucester. On Aug. 24, 1912, he was putting a shackle in place on a moving car, running in front of it. He fell in front of the car which passed over his face, resulting in a broken neck and jaw. He died on the next day.

W. H. O'DONNELL, employed by the Boston & Albany Railroad, Boston. On Aug. 25, 1912, he was employed as a freight brakeman, and is supposed to have been hit by a train, the injury causing death.

FELIX CHERINA, employed by the North Packing and Provision Company, Somerville. On Aug. 26, 1912, he became caught on a ventilating fan and was carried around the shafting, receiving injuries which resulted in his death while on the way to the hospital.

WALTER CHAPPLE, employed by Fred T. Ley & Co., Inc., Springfield. On Aug. 27, 1912, a sudden gust of wind blew over elevator upon which he was working and he fell 50 or 60 feet to the ground and was killed.

ELLSWORTH R. FLEET, employed by the Edison Electric Illuminating Company of Boston. On Aug. 28, 1912, he fell from a pole to the ground, fracturing his skull, and died on his way to the hospital.

FRANK GAMARCHE, employed by the General Electric Company, Pittsfield. On Aug. 28, 1912, his foot came in contact with a high tension lead, and he was killed instantly.

HENRY FREDETTE, employed by Hooper, Waters Company, Boston. On Aug. 30, 1912, he fell from the fourth floor of a new building to the basement, and died one-half hour later.

JOSEPH H. LOCKE, employed by the New York, New Haven & Hartford Railroad Company, Boston. On Aug. 30, 1912, while cleaning a lamp on signal, he was struck by a tender and instantly killed.

JAMES KEATING, employed by the Hugh Nawn Contracting Company, Boston. On Aug. 30, 1912, he was struck on the side of the head by a stone which flew from a hammer on a derrick, fracturing his skull. He was taken to the City Hospital and died on Sept. 9, 1912.

PATRICK DONAHUE, employed by the Fiske Estate, Boston. On Aug. 30, 1912, he attempted to enter an elevator which was moving, and was caught between the car and sixth floor. He was carried by and crushed against the ceiling, his body falling to the bottom of the well. He was taken to the Relief Station and died soon after.

MIKE MAZZA, employed by the Boston & Albany Railroad Company, Boston. On Sept. 5, 1912, at Chester, he stepped in front of an engine and received a bad scalp wound, dying at the Springfield Hospital a few hours later.

DAVID McECHREN, employed by Fred T. Ley & Co., Springfield. On Sept. 6, 1912, his foot came in contact with a telephone cable, and, when seen, was hanging by his body belt, dead.

FRANK R. WHEATON, employed by Woodman Bros. & Rose, Danvers. On Sept. 12, 1912, he became entangled in a cable and was drawn over a drum, his right leg being torn off at the knee joint, and his left arm broken in several places, skull fractured and numerous contusions all over his body. He was taken to the Salem Hospital, where he died a few hours later.

P. RICHARDS, employed by the Boston & Maine Railroad Company, Boston. On Sept. 13, 1912, he was crossing tracks in the yard and stepped in front of a train, receiving fatal injuries.

JAMES DONALD, employed by the Cambridge Gas Light Company, Cambridge. On Sept. 17, 1912, he was found dead on the floor in an office where he was in the habit of staying while watching, the gas radiator cocks being open. He died from gas poisoning.

EDWARD ARVISAIS, employed by the Merrimack Manufacturing Company, Lowell. On Sept. 17, 1912, a ledger broke and he fell from staging to street, a distance of 51 feet, and probably died instantly.

ARTHUR L. PRATT, employed by Alfred W. Davis, Acton. On Sept. 17, 1912, he was unloading timber from a car; a skid flew up and hit him in the throat, breaking his neck and causing instant death.

THOMAS LEHENEX, employed by the Edison Electric Illuminating Company, Boston. On Sept. 19, 1912, while working on a pole, his arm came in contact with the primary and his spur touched a telephone wire on the pole, making a ground causing an electric shock, which resulted in his death.

JAMES I. VAN BUSKIRK, employed by the Boston Elevated Railway Company, Boston. He fell between the fourth and fifth cars of a train, landing between the third rail and cable box, and was instantly killed.

D. E. MCGOWAN, employed by the Boston & Maine Railroad Company, Worcester. On Sept. 21, 1912, he was on top of a car and hit his head on an overhead bridge, dying about six hours later.

WILLIAM H. BURKE, employed by the New York, New Haven & Hartford Railroad Company, Boston. On Sept. 23, 1912, he was riding on the side ladder of a car and was caught and rolled against another car and injured internally. He died a few hours later at the Massachusetts General Hospital.

JOHN FULLERTON, employed by S. J. Gerroir, Boston. On Sept. 23, 1912, he fell from staging and struck on his back and left hip. He was taken to the City Hospital where he died a week later.

DENNIS McDONALD, employed by Thomas A. Elston & Co., Boston. On Sept. 23, 1912, vault doors tipped and fell, pinning him to the ground and killing him instantly.

CESORE BASILICI, employed by the New York, New Haven & Hartford Railroad Company, Boston. On Sept. 26, 1912, he was working on track, and in stepping out of the way of one train stepped in front of another and was instantly killed.

JOHN WALSH, employed by E. R. Grabow Company, Boston. On Sept. 27, 1912, while cleaning a window on the fourth floor, he lost his balance and fell to the lawn. He died at the City Hospital later in the day.

BERNARD J. DELANEY, employed by John J. Bradley, Neponset. On Oct. 1, 1912, he was standing near his team in an excavation for a house and near a tree stump. The stump fell over and struck him on the head, from which injury he died shortly afterward.

MICHAEL ELLIS, employed by Woodbury & Leighton Company, Boston. On Oct. 8, 1912, he stepped from a plank into an opening and fell about 28 feet to a basement. He was sent to the City Hospital, his skull being fractured, and he died about a week later.

RIGOLI SEBASTIANO, employed by the Boston Manufacturing Company, Waltham. On Oct. 8, 1912, he was trying to get on an elevator after it had started and was caught between floors, breaking his neck. Death was instantaneous.

JIM DITURSO, employed by the Boston & Maine Railroad Company, Boston. On Oct. 10, 1912, he did not see a train in time to get out of the way and was struck and killed instantly.

GARFIELD A. CODWELL, employed by Henry E. Stanton, Huntington. On Oct. 10, 1912, he was struck by a passenger train and instantly killed.

JAMES P. MONAHAN, employed by Boston & Maine Railroad Company, Athol. On Oct. 12, 1912, he was found beside the track with his leg crushed off below the knee, and died in the hospital a few hours later.

WALTER R. CLEMENS, employed by the Boston & Albany Railroad Company, Boston. On Oct. 12, 1912, he fell off the head end of a train and his left arm and hip were crushed, causing death.

S. A. BRADLEY and D. W. CAMERON, employed by the Boston & Maine Railroad Company, Boston. On Oct. 12, 1912, there was a collision in storage yard, and these two men, engineer and fireman, respectively, were so seriously injured that they died in a few minutes.

MICHAEL HINES, employed by the Boston Dyeing and Cleansing Company, Boston. On Oct. 15, 1912, he was so seriously burned that he died at the City Hospital.

FRANK BERNARD, employed by the Boston & Maine Railroad Company, Billerica. On Oct. 15, 1912, he was unloading a large water pipe from a car, which swung around and knocked him off, and he was killed.

WILLIAM H. DECKER, employed by the Boston & Maine Railroad Company, Boston. On Oct. 16, 1912, he was returning from supper and walking on the track. He fell off a trestle 15 feet high and was killed.

FRANK ROBIDEAU and J. BOURGEOIS, employed by Deschamps & Cote, Fall River. On Oct. 18, 1912, a bank caved in and buried them. They were dead when their bodies were recovered.

VANGEEL JARO, employed by American Steel and Wire Company, Worcester. On Oct. 19, 1912, he was crossing railroad tracks, when he was struck by box cars. Death was due to multiple injuries.

PETER LORRI, employed by Lewis Manufacturing Company, Walpole. On Oct. 19, 1912, he fell into a tub containing about 18 inches of boiling water. He was taken out and sent to the Massachusetts General Hospital, where he died later in the day.

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ARTHUR POTTER, employed by MacDonald & Joslin Company, Boston. On Oct. 24, 1912, a laborer accidentally dropped a plank and it struck this man across the chest, paralyzing his heart so that he died a few minutes after.

HARRY BARRETT, employed by Lovell Brothers, Watertown. On Oct. 24, 1912, the wagon which he was driving was struck by an electric car, and he was thrown from the seat and killed.

JOHN E. TAYLOR, employed by sewer department, city of Worcester. On Oct. 25, 1912, he was thrown from carriage on to the pavement, and taken to the City Hospital, unconscious, where it was found he was suffering from gash on forehead, face bruised and ribs fractured. He died two days later from exhaustion following the shock.

JOSEPH B. TRACY, employed by Frank L. Leydon, Cambridge. On Oct. 29, 1912, a staging, upon which he was working, collapsed, and he was thrown to the roof of a piazza and to the ground, a distance of 12 feet, resulting in injuries which caused his death on the next day.

JAMES EDMONDS, employed by the Boston & Maine Railroad Company, Weston. On Oct. 31, 1912, he was riding on top of a train and was struck by an overhead bridge, being killed.

MISCELLANEOUS MATTERS.

MISCELLANEOUS MATTERS.

OVERTIME.

Acts of 1909, chapter 514, section 48, provides that reports shall be made to the Chief of the District Police of all overtime employment in manufacturing establishments; and in accordance therewith, the following overtime employment in such establishments has been reported to me during the year:—

Time reported as lost,	.	.	.	.	1,670 hrs., 30 min.
Time reported as made up,	.	.	.	.	367 hrs., 40 min.

All time reported lost in connection with the stopping of machinery is included in the above, whether such loss was caused by the closing down of but part of the establishment or of the entire establishment.

FORFEITED LIQUORS AND CONFISCATED WEAPONS.

Revised Laws, chapter 100, section 80, provides as follows:—

SECTION 80. Any liquor so forfeited shall, by the authority of the written order of the court or trial justice, be forwarded by common carrier to the chief of the district police, who upon receipt of the same shall notify said court of justice thereof. Said officer shall sell the same, and after paying the cost of the transportation of the liquors he shall pay over the net proceeds to the treasurer and receiver general. The officer who serves the order above named shall be allowed therefor fifty cents, but shall not be entitled to receive any travelling fees or mileage on account of the service thereof.

In obedience to the above statute I have received, from the officers of the Commonwealth whose duty it is to forward them, certain liquors and the vessels containing the same, which have been seized and forfeited by virtue of this act, giving my receipt therefor.

The quantity of liquors received from 1,031 such seizures during the year was as follows: —

Spirituous liquors, . . .	2,901 gallons, 2 quarts, 3 gills.
Malt liquors, . . .	8,088 gallons, 3 quarts, 1 pint, 2 gills.

A large quantity of the spirituous liquors, being of value for medicinal purposes, were sold to hospitals and individuals for such use only, the balance of such liquors being disposed of to distilleries for the extraction of alcohol contained therein. As there has been no opportunity for the disposal of the malt liquors except as beverages, they have been emptied into the sewer.

The sum of \$1,800 has been paid to the Treasurer of the Commonwealth, being the net proceeds resulting from the sales of liquors after deducting the expenses incurred from the transportation and handling of the same.

Under the provisions of section 2, chapter 172, Acts of 1906, as amended by chapters 350 and 583, Acts of 1908, all confiscated weapons shall be forwarded to the Chief of the District Police, by whom they may be sold or destroyed; and should such weapons be sold, after paying the cost of forwarding, the net proceeds shall be paid over to the Treasurer of the Commonwealth.

I have received during the year, from the various officers of the Commonwealth whose duty it is to forward the same, in compliance with the provisions of this statute, the following confiscated weapons: —

Revolvers, ...	75
Dirk knives, ...	3
Slung shots, ...	3
Brass knuckles, ...	1

and my receipts have been given for the same.

Of the weapons enumerated above, the dirk knives, slung shots and brass knuckles were destroyed; the revolvers were sold, and the net proceeds, \$47.50, have been paid over to the Treasurer of the Commonwealth.

AMOUNTS PAID TO THE TREASURER OF THE COMMONWEALTH.

During the fiscal year ending Nov. 30, 1912, there have been paid to the Treasurer of the Commonwealth, by the District Police Force, the respective amounts specified in the following statement, such amounts representing the fees received for the services stated, and the net proceeds from the sales of forfeited liquors and confiscated weapons:—

Assistant moving-picture machine operators' permits, ...	\$481 00
Confiscated weapons, ...	47 50
Examinations of applicants for engineers' and firemen's licenses, ...	6,513 00
Examinations of applicants for hoisting machinery operators' licenses, ...	234 00
Examinations of applicants for moving-picture machine operators' licenses, ...	1,464 00
Forfeited liquors, ...	1,800 00
Inspections of boilers, ...	16,147 00
Inspections of moving-picture machines, ...	402 00
Inspections of moving-picture machine booths, ...	228 00
Renewal of moving-picture machine operators' licenses, ...	578 00
Special permission for exhibitions of moving pictures, ...	428 00
With applications for approval of licenses for Lord's day entertainments, ...	7,470 00
Total, ...	\$35,792 50

APPROPRIATIONS AND EXPENDITURES.

The following statement specifies the respective amounts appropriated for the use of this force, and the amounts expended therefrom: —

DETAIL.	Appropriations.	Expenditures.	Amount unexpended.
Salary of Chief of the District Police, ...	\$3,000 00	\$3,000 00	-
Salaries of the first clerk, second clerk and stenographer.	3,425 00	3,420 83	\$4 17
Contingent office expenses, ...	8,500 00	8,496 16	3 84
Salaries of members of the detective department, .	39,000 00	38,729 15	270 85
Salaries of stenographers and clerk of the detective department.	4,550 00	4,541 66	8 34
Travelling expenses of the members of the detective department.	14,500 00	15,222 00 ¹	-
Special services and expenses in the investigation of fires.	2,500 00	2,492 20	7 80
Regulation of explosives, ...	2,500 00	1,198 73	1,301 27
Salaries of members of the inspection department,	87,300 00	82,231 67	5,068 33
Salaries of stenographers and clerks of the inspection department.	6,975 00	6,881 26	93 74
Travelling expenses of members of the inspection department.	23,301 05 ²	21,516 96	1,784 09
Expenses in connection with moving-picture apparatus.	600 00	255 36	344 64
Expenses in connection with boiler apparatus, .	1,000 00	998 82	1 18
Expenses of steamer "Lexington,"	9,500 00	9,466 76	33 24
Compensation of members of Board of Boiler Rules,	1,000 00	1,000 00	-
Expenses of the Board of Boiler Rules, ...	1,000 00	1,000 00	-
Totals, ...	\$208,651 05	\$200,451 56	\$8,921 49 .

¹ Balance transferred from extraordinary expenses.

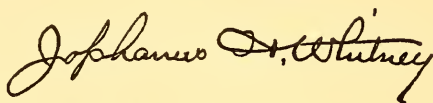
² Refunded account of personal telephone message, \$1.05.

CONCLUSION.

In closing this report of the various duties performed by the members of this force during the year, it is but just to state that it is merely an abstract of the work accomplished. In both the detective and inspection departments the deputy chiefs and other members have shown intelligence, fidelity and scrupulous devotion to the interests of the Commonwealth, and I take pleasure in recording my testimony in their behalf.

I desire to express my gratitude to Your Excellency for the cordial support and encouragement I have received from you. I also wish to acknowledge the assistance rendered me, as occasion required, by the Attorney-General and his associates, by their advice in the interpretation of the statutes.

Respectfully submitted,

A handwritten signature in cursive script, reading "Johannes D. Whitney". The signature is written in dark ink and is positioned above the printed name.

Chief, Massachusetts District Police.

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